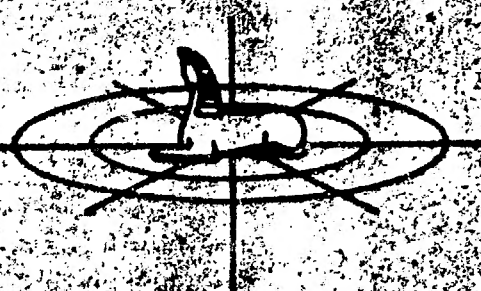


YEARS

FTD

1917

1967



**FOREIGN TECHNOLOGY DIVISION**  
**of the**  
**AIR FORCE SYSTEMS COMMAND**



***TOMORROW***



***We MUST look to the future. We must make decisions on which will depend to a great degree the permanence of peace, the fate of our country, and perhaps even the existence of human civilization.***

***General of the Army***

***H.H. Arnold***

***September, 1945***



# MESSAGES FROM THE



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR FORCE SYSTEMS COMMAND  
ANDREWS AIR FORCE BASE, WASHINGTON, D.C. 20331



REPLY TO  
ATTN OF SCG

SUBJECT FTD Anniversary

TO Commander  
Foreign Technology Division  
Wright-Patterson AFB, Ohio

On the occasion of this anniversary celebration, I welcome the opportunity to express the appreciation and pride of the Systems Command for the continued excellent performance of the Foreign Technology Division. As the primary DOD producer of aerospace technical intelligence, FTD's effectiveness extends beyond the Systems Command and contributes directly to the enhancement of national security. My personal congratulations go especially to the fine military-civilian team at FTD whose achievements and performance are well recognized and appreciated.

*James Ferguson*  
JAMES FERGUSON  
General, USAF  
Commander

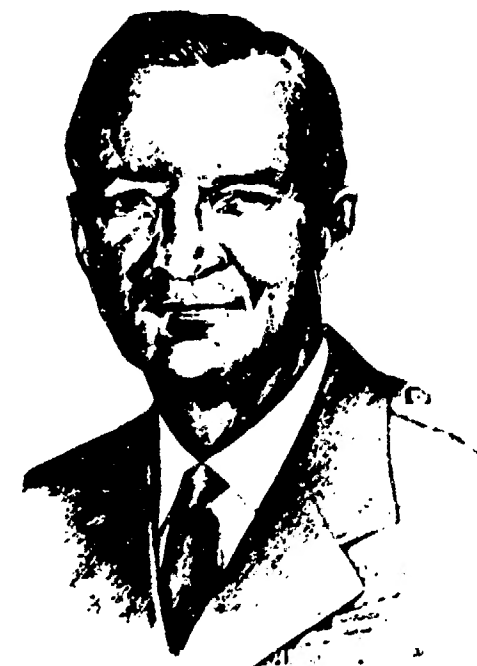
# COMMANDERS

The Foreign Technology Division gives recognition this year to a heritage of 50 years of leadership in scientific and technical intelligence. Many organizations within the Department of Defense share in the achievements of the Foreign Technology Division. The Army, Navy, Air Force, and the Defense Intelligence Agency have, at various periods throughout FTD's history, contributed to the nourishment and growth of this ever viable organization.

During the past 50 years, the growth and importance of scientific and technical intelligence has paralleled the growth of science and technology worldwide. Science and technology have provided society with many benefits: miracle drugs, efficient transportation, improved housing, power, advances in education, and worldwide communications. They have also provided advanced weapons: supersonic aircraft, missiles, and nuclear warheads - instruments which can destroy a major segment of our world population or assure peace and security.

The past 50 years has thus seen the fruits of science and technology emerge as a vital force in the establishment of national policies and in international relations.

Ascendance to the position of world leadership has thrust the US into competition with other nations for technological supremacy. Today, Marxism-Leninism continues to be militant. The countries committed to Marxism-Leninism challenge the strength of our system of government. They threaten our position of primacy in science, technology, and the attendant production of superior warfare systems. The challenge must be met.



Upon its 50th Anniversary, the Foreign Technology Division rededicates itself to supporting our Nation's goals and objectives. It dedicates its professionalism, its technical competence, and its personnel to the principle that knowledge of foreign science and technology and its product - advanced warfare systems - will assist our decision makers in formulating and executing those national policies which will perpetuate our democratic system.

*Raymond S. Sleeper*  
RAYMOND S. SLEEPER, Colonel, USAF  
Commander

# HERITAGE OF LEADERSHIP / PAST COMMANDERS



1. General (then Colonel) Donald J. Putt, 1945-1946
2. Col Howard M. McCoy, 1946-1949
3. Col Harold E. Watson, 1949-1951
4. Col Frank L. Dunn, 1951-1952
5. Col John A. O'Mara, 1952
6. B/Gen Wm. M. Garland, 1952-1953
7. Col George Wertenbaker, 1953-1954
8. M/Gen Harold E. Watson, 1954-1958
9. Col John G. Eriksen, 1958
10. M/Gen Charles B. Dougher, 1958-1961
11. B/Gen Arthur J. Pierce, 1961-1964
12. B/Gen Arthur W. Cruikshank, Jr., 1964-1966



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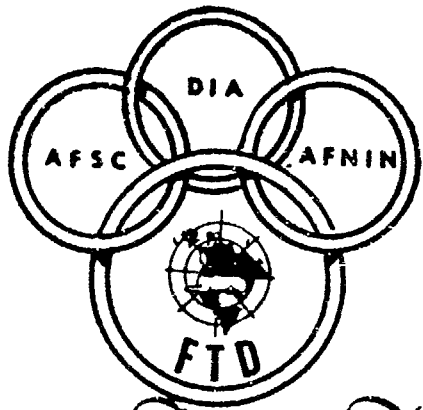
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11.



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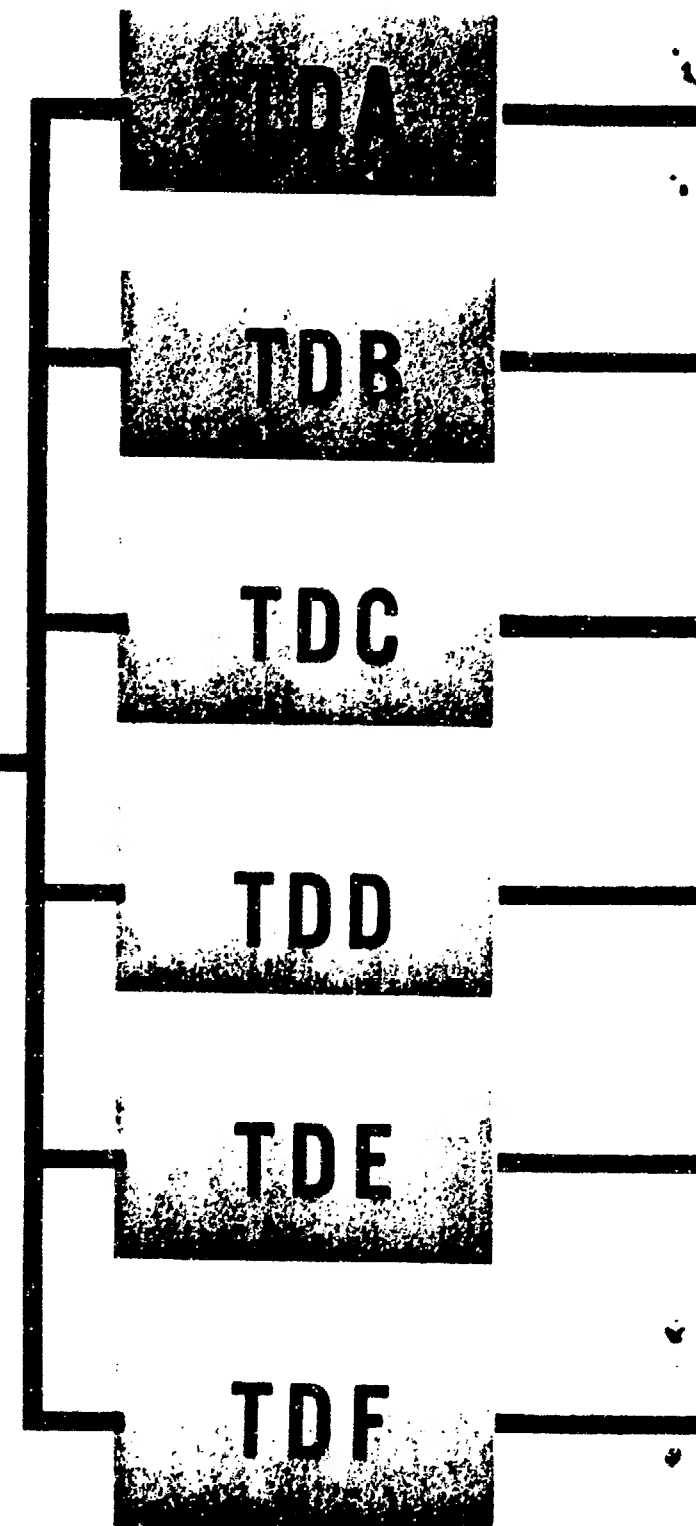


# MISSION

*The mission of the Foreign Technology Division is to plan, manage, and produce scientific and technological intelligence in support of the Air Force Systems Command mission; support the intelligence requirements of the Assistant Chief of Staff, Intelligence, Hq. United States Air Force, the Defense Intelligence Agency, and other organizations outside A.F.S.C., as required or directed by Hq. A.F.S.C.; and reduce the possibility of aerospace technological surprise.*

AFSCR 23-27

# ORGANIZATION



## **FOREIGN ACTIVITIES DIRECTORATE**

Directs the use of human resources and foreign materiel in the AFSC collection effort to acquire foreign aerospace scientific and technical information.

## **FOREIGN TECHNOLOGY REPORTING DIRECTORATE**

Processes and disseminates incoming collateral information, intelligence documents and data; provides for research services and translation; and controls dissemination of foreign technology information products.

## **RADIATION WARFARE SUPPORT DIRECTORATE**

Provides analytical services, technical support, data reduction and engineering guidance for the acquisition and exploitation of scientific and technical data derived from or acquired through the use of physical sensors.

## **ENGINEERING SUPPORT DIRECTORATE**

Provides engineering analysis, photo exploitation, graphics and automated data-handling systems.

## **TECHNOLOGIES & SUB-SYSTEMS DIRECTORATE**

Studies and evaluates current status and future potential of foreign technologies, weapon components and subsystems. Manages the Air Force unidentified aerial phenomena program.

## **AEROSPACE WEAPON SYSTEMS DIRECTORATE**

Produces current reports of foreign technology activities, studies of aerospace systems, integrated evaluations of foreign aerospace systems and assessments of their technological threats.



# 50 YEARS...

FOREIGN DATA SECTION (1917-1927)

When in 1917 the Airplane Engineering Department was established at McCook Field in Dayton, Ohio, a "Foreign Data Section" was included and charged with the responsibility for copying or modifying foreign aircraft - primarily the British De Havilland light bomber (DH-4). From this modest beginning air technical intelligence evolved, precipitated by the advances of European aviation and the outbreak of war.

## BILLY MITCHELL

As early as 1912 Major William (Billy) Mitchell, Chief of the European Intelligence Section of the War Department, envisioned the significance of air technical intelligence. In his post he found that most of the interesting information crossing his desk involved aviation and its tactical applications. During the Balkan Wars, for example, Bulgarian and Greek fliers had experimented with a new concept in warfare - aerial bombing. But only Mitchell and a few other military men recognized the relatively advanced status of European aviation.

He was convinced that the US would go to war against Germany and that the US was not prepared, especially in the air. He petitioned his superiors until he was issued orders on 3 March 1917, to report to the American Ambassador in Paris for "the specific purpose of observing the manufacture and development of aircraft" and to "report on French methods in combat, training, and organization of airmen." He was en route to Paris when America entered the war on 16 April 1917.

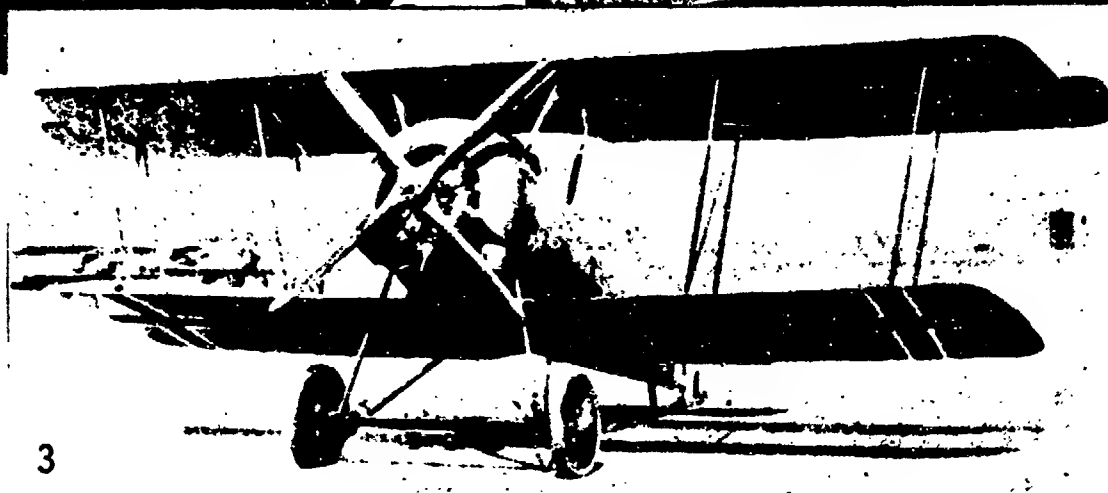
Mitchell bombarded the War Department with suggestions to build or buy French planes - Spads, Breguets and Nieuports. He said, "I had been able to flounder around with the animated kites that we called airplanes in the United States, but when I laid my hand to the greyhounds of the air they had in Europe, which went twice as fast as ours, it was an entirely different matter."

Mitchell also learned much from the British. In the company of Sir Hugh Trenchard, he watched night bombers take off for strikes behind enemy lines. Impressed by the effectiveness of massed bombers, he said, "This is the proper way to use air power, and I am sure the future will see operations conducted in this way by thousands of airplanes."

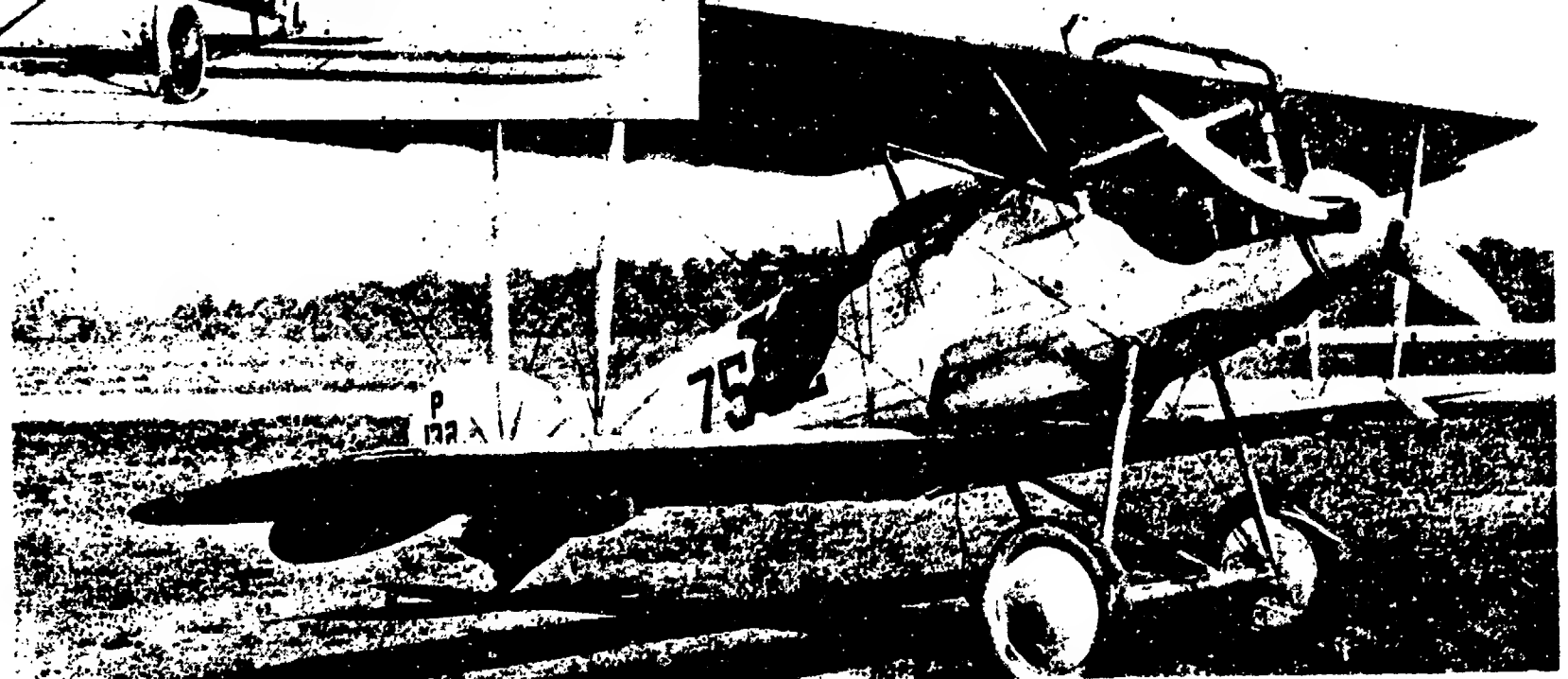
## THE BOLLING MISSION

In July 1917, Major Reynal C. Bolling headed an air mission to study British and French aviation, train a cadre, and return to form an organization. The mission included several of the key officers who organized McCook Field later the same year. The Bolling mission resulted in the decision to build the British two-seater De Havilland light bomber in the US despite an objection by Mitchell, who considered the DH-4 inferior to the French pursuit planes he himself had recommended. Although the mission soon returned to the US, Major Bolling's duties kept him in France, where he was killed in March 1918, near the front lines, defending himself with a pistol against a party of Germans.

- 
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|------------------------|---------------------------------|
| 1. EARLY WW-I "BOMBER" | 3. PFALZ-D.VIII AT McCOOK FIELD |
| 2. PFALZ-DXV           | 4. LATE D-VI B TESTED AT McCOOK |



1917



1917



1967

### McCOOK FIELD

Shortly after the return of the Bolling mission in October 1917, several existing aviation departments merged into the new Airplane Engineering Department under the Army Signal Corps.

It was soon transferred from Washington to Dayton, Ohio, temporarily housed in the Lindsay Building in the center of Dayton, and on 4 December 1917, settled in its new McCook Field quarters. This site had been selected because it had been prepared and used for exhibition flights by the Wright Exhibition Company and because it was convenient to Midwest industrial centers.

### TECHNICAL DATA SECTION (1927-1942)

### WRIGHT FIELD

By 1927 the McCook Field facilities had grown too small and the Airplane Engineering operation moved to Wright Field (Area B). The air technical intelligence activities continued. Individual engineering labs studied foreign developments, a few European engineers and scientists were recruited, and intelligence reports and translations disseminated.

During the late thirties, intelligence reports from Colonel A. W. Vanaman (Air Attaché in Berlin), Charles Lindbergh, and Al Williams warned of the buildup of German and Italian air power. The limited capability of the Technical Data Section, however, handicapped their evaluation and the preparation of effective estimates and briefings for the policy makers in Washington.

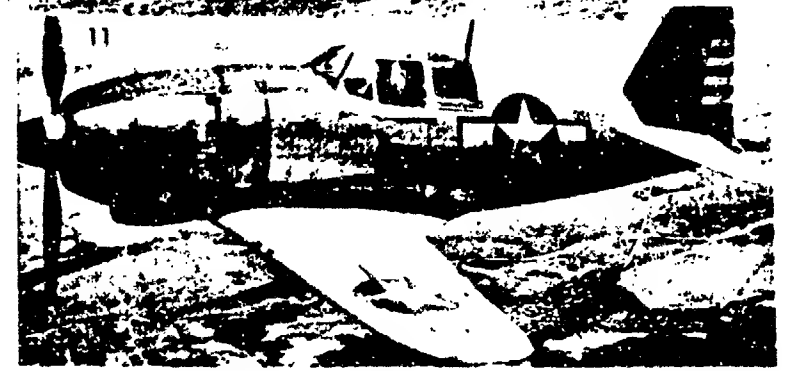
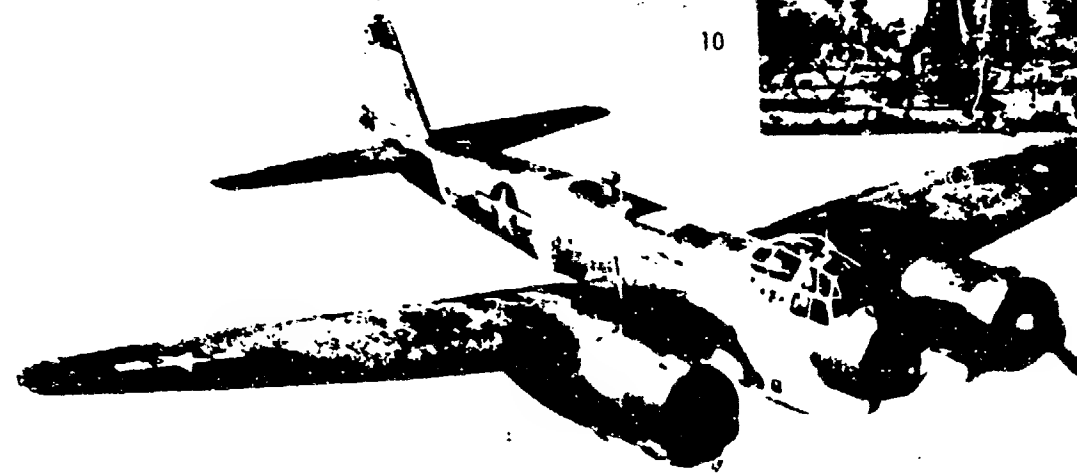
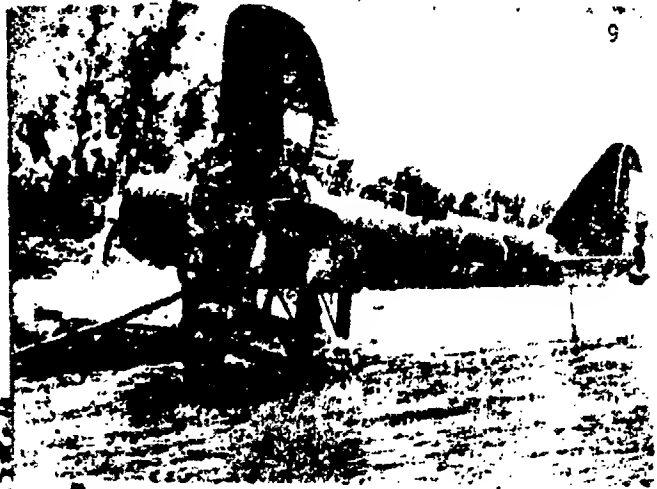
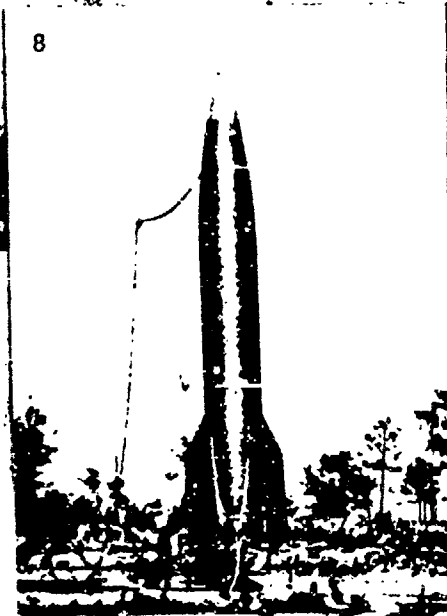
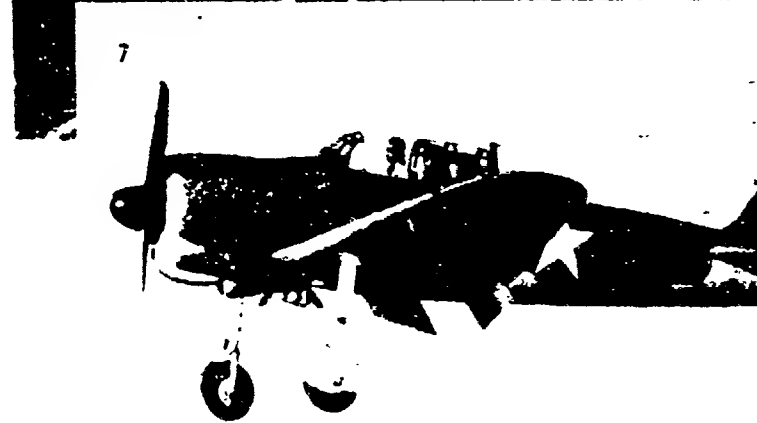
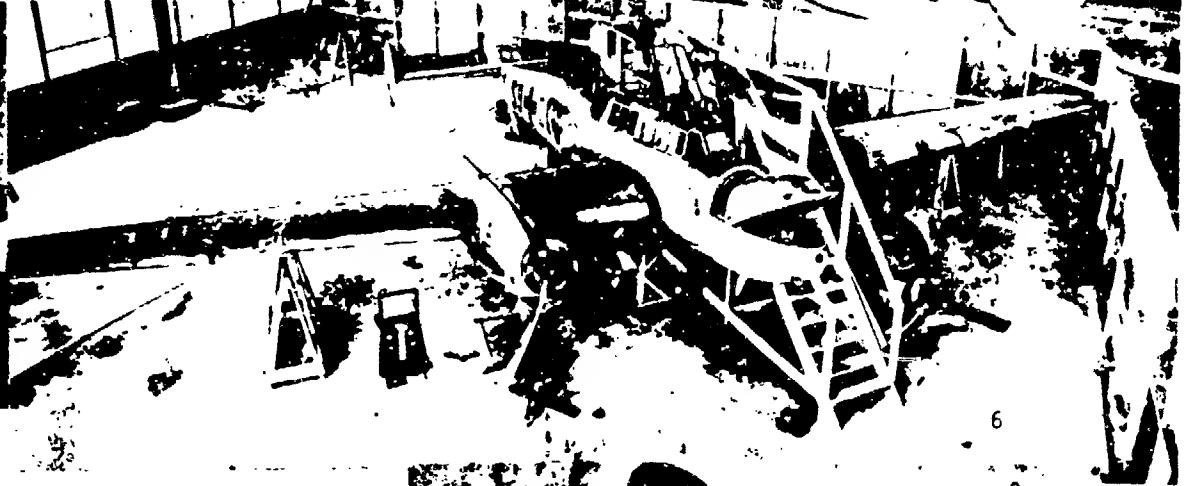
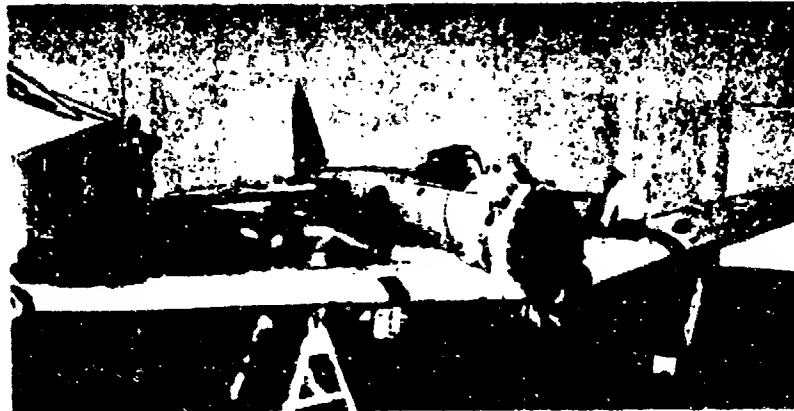
### FOREIGN AIR SUPREMACY

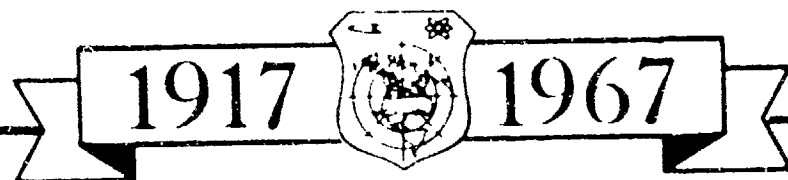
Evidence that the US lagged in the development of military aircraft was overwhelming. World records for speed, altitude, and distance were held by foreign nations. In 1939 Wright Field prepared an all-out assault to regain as many records as possible. The Germans, however, evidently learned of the plans; for just a few days ahead of our scheduled attempt, they smashed most of the existing records by such margins that the Wright Field program was cut back to only those events where special purpose aircraft such as the Boeing B-15, Grumman Amphibian OA-9, and the Boeing B-17 could possibly establish records.

In 1937 the USSR held the straight-line distance record; in 1938 the Japanese gained the distance record for a closed course and the Italians the altitude record; in 1939 the Germans set the speed record (469.22 mph in a ME-109R).

Further evidence of foreign prowess in aviation was plentiful. In 1937 Hanna Reitsch (a German woman pilot) flew Focke's FW-61 in the first free fully-controlled helicopter flight. In August 1939 the Germans first flew the turbojet-powered Heinkel (HE-178).

- 
5. ZERO UNDER EXAMINATION
  6. ME-110 SHOT DOWN IN ENGLAND AND ASSEMBLED IN US
  7. SASEBO KT-00 PETE
  8. CAPTURED PHOTO OF V-2 ON LAUNCH PAD
  9. ZERO-FLIGHT TESTING
  10. JU-88 FLOWN TO US DURING WW-II
  11. J2M3 RAIDEN MODEL 21





## IMPACT OF WORLD WAR II

At the time of World War II, the US was again forced to catch up with our foes and allies alike. Some of our aircraft such as the B-17 had impressive performance records. But at the beginning of the war they were not capable of performing their military mission, as early events proved.

A "crash" program was begun. Modification Centers were quickly established; production lines introduced armor plate, self-sealing fuel tanks, and power gun turrets. Armament changes were made and our aircraft began to approach, and, in some cases, exceed the effectiveness of their opponents.

### TECHNICAL DATA LABORATORY (1942-1945)

In December 1942, the Technical Data Section was redesignated the Technical Data Laboratory and its operations expanded to include the evaluation of foreign aircraft and related equipment. Shipments of captured equipment increased and Technical Data soon occupied six buildings, a large outdoor lot on Wright Field's hilltop area, and part of one of the flight-line hangars. Technical specialists from the various laboratories, assisted by design contractors, evaluated and exploited the captured equipment.

### V-2 MISSILE IDENTIFIED

The impact of new enemy weapons of radical and advanced design forced an appreciation of technical intelligence. The V-2 intelligence analysis is a case in point. Some months before the Germans launched the V-2 missiles against London, the Soviets observed a number of large blast craters on the Polish front. An Army Air Force intelligence team went to Poland, retrieved all the fragments, and returned to England. By assembling these fragments, a joint

British-American team was able to identify the weapon as a ballistic missile. Once the weapon had been identified, efforts could be made to establish effective countermeasures.

### CIOS

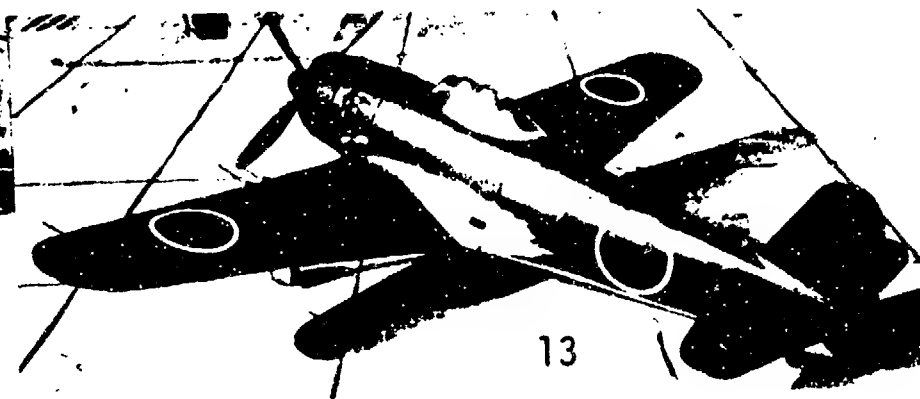
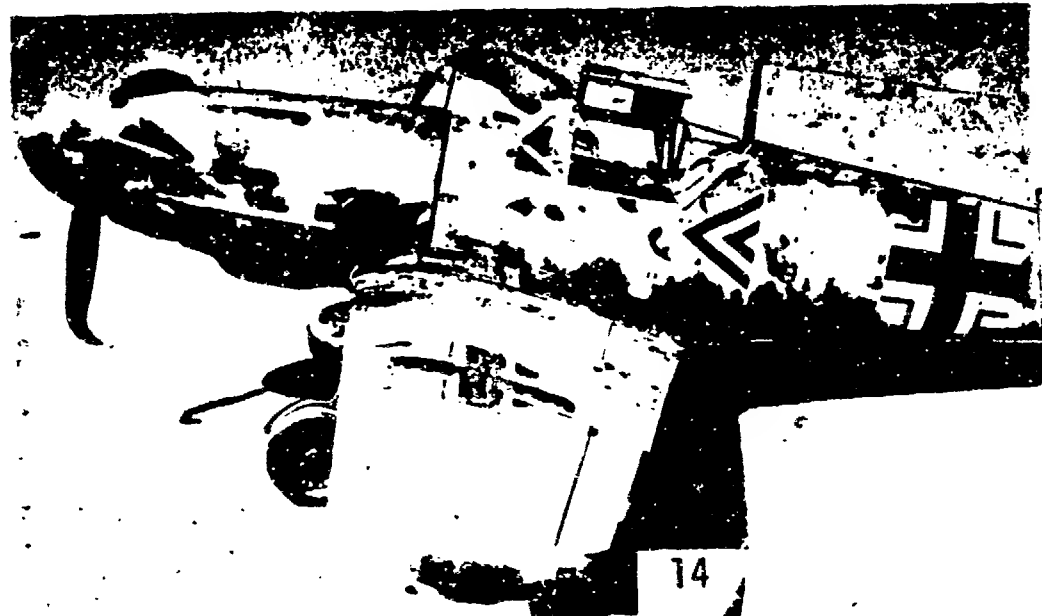
As the war reached its climax in Europe and the intelligence needs of the air operations declined, the technical exploitation mission expanded. In London during the summer of 1944, the British-American Combined Chiefs of Staff created the Combined Objectives Subcommittee for the orderly exploitation of German scientific and technical targets. Officers, assisted by civilian scientists, were to closely follow the ground armies and exploit captured R&D centers within Germany. Wright Field provided the majority of officers and civilian scientists detailed to this operation.

### INTELLIGENCE T-2 (1945-1951)

Meanwhile, important organizational changes were taking place at Wright Field. In September 1944, the Air Materiel and Air Service Commands merged to form the Air Technical Service Command. The technical "T" staff included "T-2" Intelligence, with Colonel John M. Hayward (formerly Chief of the Technical Data Laboratory) as Acting Chief. He served in this capacity until 5 September 1945, when Colonel Donald L. Putt was appointed Deputy Commanding General, Intelligence T-2.

The T-2 operation played a major role in the continued exploitation of captured materiel, documents, and manpower.

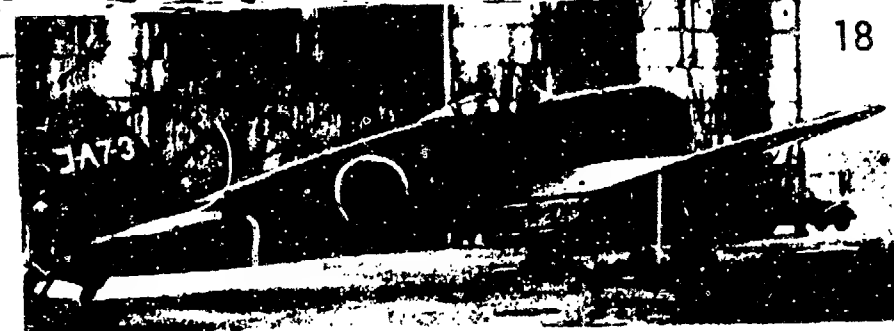
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- |                               |            |                      |
|-------------------------------|------------|----------------------|
| 12. ME-109F/2 - ENGLAND       | 15. FW-190 | 16. KAWANISHI H8K    |
| 13. ME-109G                   |            | 17. MARCHETTI-SM-79  |
| 14. KAWANISHI NIK2-J (GEORGE) |            | 18. A7M2-PEPPY (SAM) |



15



17



1917



1967

## PROJECT LUSTY

After a few weeks of field operations, CIOS procedures proved too cumbersome for the fast moving war, and Army Air Corps Project LUSTY was established for a rapid and concentrated exploitation of air technical intelligence targets.

On 27 April 1945, General Spaatz gave top priority orders to technical intelligence to complete their collection task and return the materiel and documents to the US as quickly as possible. Late model aircraft and engines were spotted all over the Reich, but their removal to the US presented a major logistical problem. Most of the airplanes were either flyable or reparable but did not have sufficient range for flight to this country.

Colonel Harold E. Watson of Wright Field organized and trained pilots to fly out captured German aircraft, including the new jets. As a consequence, advanced design aircraft were recovered that otherwise might have been destroyed either by our own troops or the retreating Germans.

The British advised Colonel Watson that H.M.S. Reaper (a small carrier) would be leaving Liverpool for New York in July 1945. Less than three weeks were left to assemble the aircraft at Cherbourg, France, for pickup by the carrier. Colonel Watson took charge of flying out the aircraft, and Lt Colonel Malcolm D. Seashore took charge of readying the landing field at Cherbourg (too small for jet aircraft) and preparing the aircraft for overseas shipment.

The priority collection items were jet planes. After locating an ME-262, Colonel Watson received a quick cockpit check from Willi Messerschmitt, circled the field, refueled, and delivered the prize to Melun, France. He returned in a beat-up C-47 and checked out other US pilots.

Scarcity of jet fuel was another problem. On several occasions German tractors were drained of their diesel fuel so

that flights could be made. Heinz Braun, a Luftwaffe pilot who had been released from military prison for this project, briefed the Americans and they were away to Cherbourg.

In this manner, 40 German planes were delivered to Cherbourg within 20 days. A Heinkel 219, an Arado 234, and Junkers 388-G were flown from Grove, Denmark. Two more AR-234's came in from Stravenger in Norway. When deliveries stopped on 8 July 1945, 9 jet planes (including 6 different versions of the ME-262) and 30 unorthodox propeller types had been flown to the carrier at Cherbourg without a single pilot injury. The operation provided the US with a flyable model of every German combat plane, including the unique TA-152.

Earlier this same year (6 May) Colonel Watson, learning that a German defector might deliver a Junkers 290 in Munich, was on hand to take possession. Within minutes after the plane landed, Colonel Watson and Captain Fred B. McIntosh took off for Nuremberg and then to Orly, France. The plane was fitted with American radio equipment and readied for a flight to America. In July, Colonel Watson flew the plane to Wright Field.

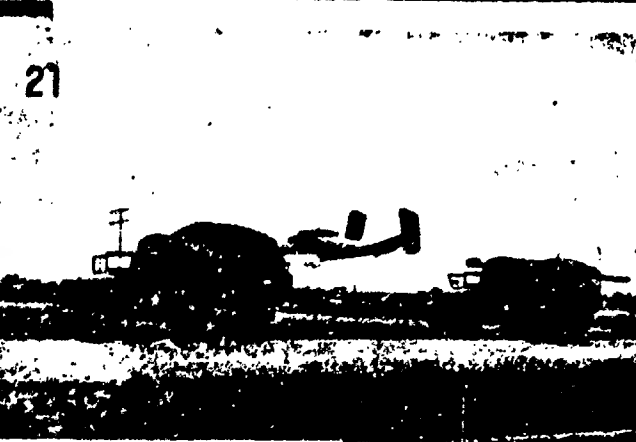
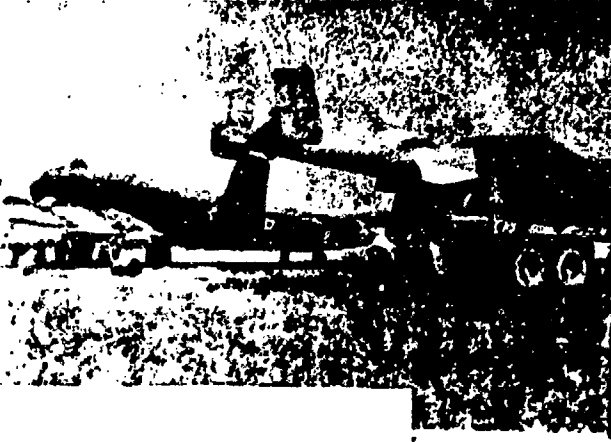
A thorough inspection at Wright Field revealed explosive charges under the main fuel tanks. For some reason they had not exploded.

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|---|--|
| 19. LUSTY TEAM                                    | 20. VOLKSJAEGER HE-162 BEING TRANSPORTED     |
| 21. VOLKSJAEGER HE-162                            | 22. ERDING AIR BASE, GERMANY                 |
| 23. COL DORNAY, COL H. E. WATSON                  |  |
| 24. DM-1 DELTA RESEARCH GLIDER (LIPPISCH)         |  |
| 25. HE-162  | 25A. ME-163    26. GERMAN GLIDE BOMB BV-246  |
| 27. ME-262  | 28. ME-262 - COL WATSON, PILOT    29. ME-163 |
| 30. H.M.S. REAPER AT CHERBOURG, FRANCE, JULY 1945 |  |



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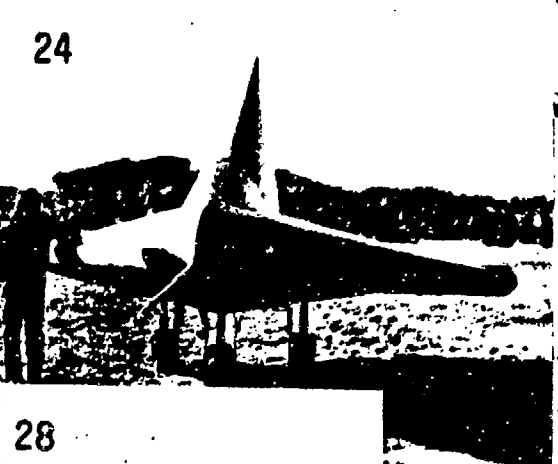
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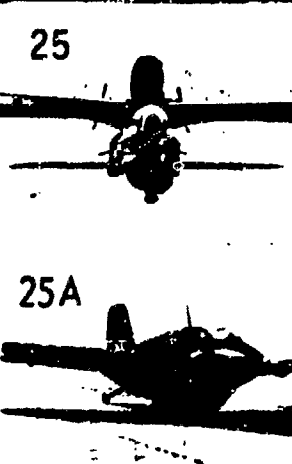
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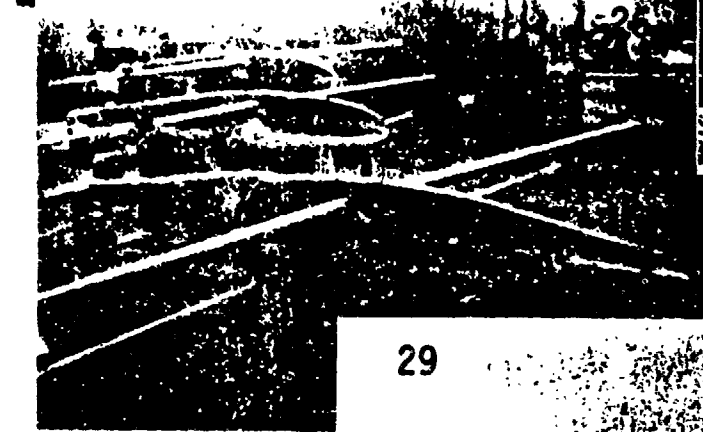


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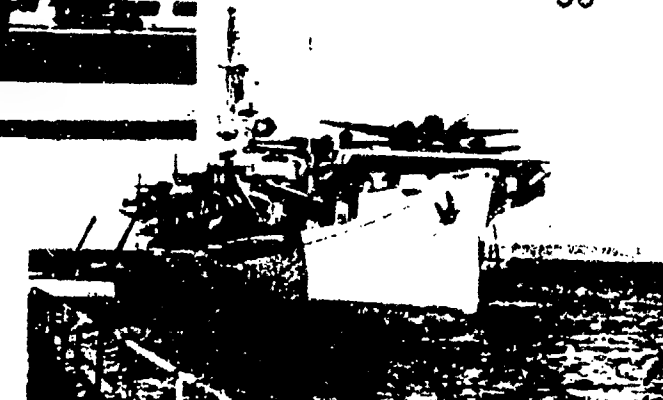
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1917



1967

In June 1945, Colonel Watson with his "flying circus" of pilots, conducted an airshow at Melun (just outside Paris) to display the latest designed German aircraft. Colonel Watson himself flew the ME-262. The audience, which included many high ranking military and civilian officials, was impressed. Most of them, including Lt General Carl Spaatz, had never before observed a jet aircraft's tremendous performance. This exhibition did much to gain the necessary priorities for the exploitation of the captured materiel and documents.

LUSTY was a dangerous mission. Several of the teams operating on the ground were killed in action. A few were captured by the enemy, but the importance of their work justified the risks taken. The exploits of Colonel Watson, Captains McIntosh, Maxfield, Dahlstrom, Hillis, and Strobel, and Lieutenants Auspach, Brown, Haynes, and Holt gave the US the latest German aircraft at a crucial time in our R&D program.

This exploitation, however, was not limited to aircraft. Colonel Howard McCoy concentrated on the capture, intact, of technical libraries and document repositories. Colonel Donald L. Putt negotiated for the release of key German scientists so that they could assist in the war with Japan and participate in the research program at Wright Field. Colonel Putt was also busy laying the groundwork for the ultimate organization at Wright Field that was to complete the exploitation phase of the project.

Colonel Jack O'Mara, who had been closely associated with British Intelligence, assisted in establishing technical targets and concentrated his efforts in the missile area. Lt Colonel Seashore worked closely with the field teams throughout Europe and later accepted responsibility for shipping the captured materiel to Wright Field. These are but a few of the operations and personnel who contributed to the success of Project LUSTY.

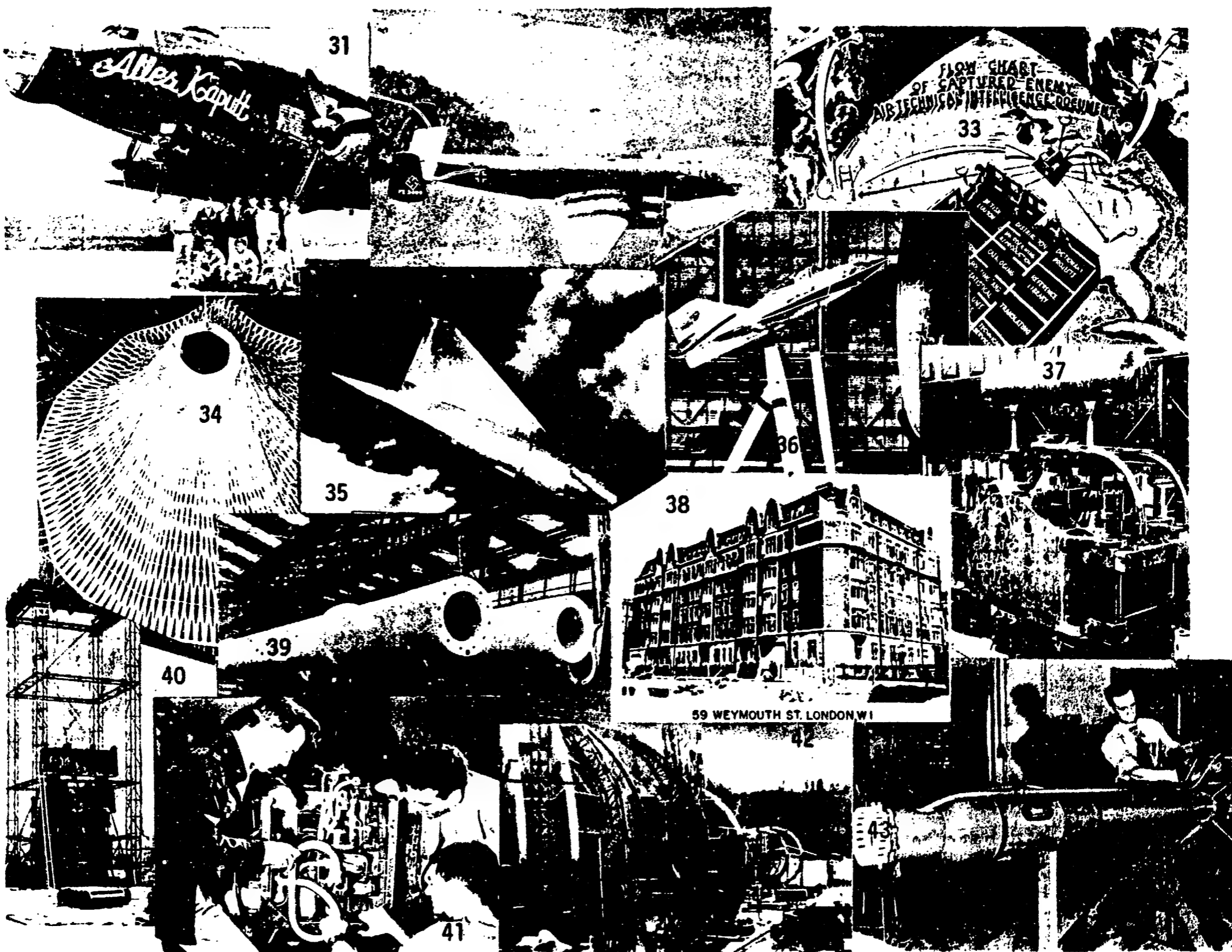
## PROJECT OVERCAST

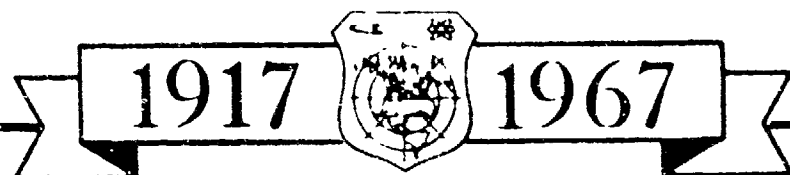
In the fall of 1944, the British and American governments took action which would impact the future of air technical intelligence and our R&D program. With the defeat of the Third Reich assured, planning began for the identification and control of scientists and technicians who might materially contribute to a revival of a German war potential. Furthermore, their technical and scientific council could benefit the US in its war with Japan.

Two factors, which were not mentioned for security reasons, gave increased urgency to its implementation. First, there was concern about postwar relations with the Soviets, and the success they might have in using such scientists. Second, the higher levels of intelligence were aware of our own atom bomb developments, and the intelligence available at that time indicated German progress. It was about this time that the ALSOS MISSION, directed by General Leslie R. Groves, was given the responsibility for determining German progress in developing an atom bomb.

Ironically, while the wisdom of evacuating German scientists was still being debated in America, Soviet intelligence was intensifying its efforts to lure scientists away from US control in Europe.

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|---|----------------------------------|
| 31. JU-290 - COL WATSON AND CREW            | 33. DOCUMENT FLOW CHART          |
| 34. GERMAN RIBBON PARACHUTE                 | 35. DM-1 DELTA GLIDER            |
| 36. WIND TUNNEL MODEL, LIPPISCH DM-1 GLIDER | 37. HEAVY PRESS                  |
| 38. AIR DOCUMENTS RESEARCH CENTER           | 39. HEAVY EQUIPMENT              |
| 40. GERMAN HEAVY PRESS                      | 41. ANALYSTS EXAMINING EQUIPMENT |
| 42. OETZTAL WIND TUNNEL                     | 43. ROCKET MOTOR                 |





Colonel Donald L. Putt, Director of Technical Services, Air Technical Service Command, Europe, was convinced that the US needed the German scientists in its R&D program. He gained the support of Major General Hugh J. Knerr, Colonel Huntington D. Sheldon, and Colonel Mark E. Bradley. Eventually he gained approval for two scientists needed for a special project at Wright Field.

Finally on 19 July 1945, a project named OVERCAST was approved as a short-term project. OVERCAST contracts with the scientists were for a 6-month period, during which time their capabilities, willingness to work, Nazi affiliation (if any), and other necessary information were determined.

#### PROJECT PAPERCLIP

On 13 March 1946, code name PAPERCLIP was substituted for OVERCAST. With the short-term personal service contracts extended indefinitely, the scientists' families were now eligible to emigrate with them.

German fear of the Soviets and dislike for the Soviet system were major factors in our success in luring leading scientists to America.

While the Army PAPERCLIP operation concentrated on the Peenemunde rocket experts, the Army Air Force chose gifted individuals whose talents matched R&D requirements in a large number of fields. The exodus of a large number of scientists and their families from one country to another for disarmament purposes was unprecedented. Administrative and security problems had to be solved quickly. Furthermore, Soviet recruitment of the scientists was also a threat.

Most of the problems were solved and the first scientists arrived at Wright Field in the fall of 1945. Some of them came by way of England (where they had been located for preliminary exploitation) while others arrived directly from Germany.

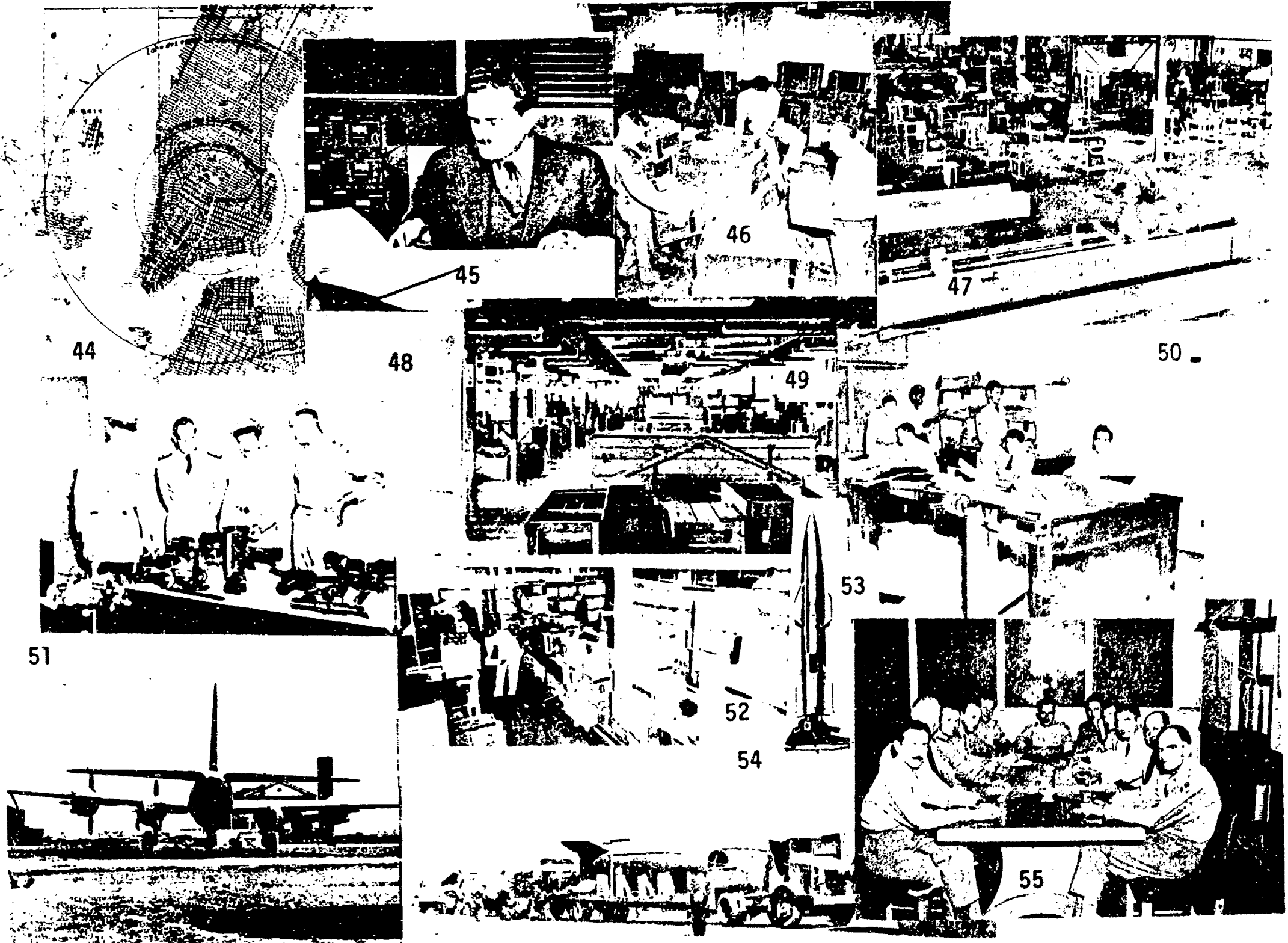
#### EVENTS IN THE PACIFIC

Air technical intelligence operations in the Pacific actually preceded those in Europe. As the war progressed they received the full support of General MacArthur, who furnished the ATI personnel with personally signed letters authorizing them to "Take complete charge of all enemy crashed or captured aircraft or personnel as early as possible after the crash." The letters ordered armed forces in the area to provide necessary transportation and assistance to ATI personnel without further authorization from any headquarters.

Early in 1942, a "Materiel Section" for air technical intelligence analysis purposes was established at Melbourne, Australia. Captain Frank T. McCoy and TSgt Francis Williams (the latter now with FTD) were responsible for its organization.

Throughout the war, air technical intelligence operations were effective in supporting the combat forces. Combat and performance characteristics of the various Japanese aircraft and weapons were prepared and distributed to the combat forces of all services. Strategic support was also furnished. For example, during the island hopping campaign from Australia to the Philippines, Japanese aircraft were found abandoned on some of the islands. Examination indicated that the majority had suffered engine damage due to connecting rod failure. Earlier models of the same engine

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44. GERMAN TARGET MAP - NEW YORK CITY 45. DR. LEIDECKER  
46. GERMAN DOCUMENTS ARRIVE FROM LONDON 47. BUILDING 89  
48. REAR ADM. PENNOYER, LT COL WALKER, COL M. D. SEASHORE  
49. CAPTURED MATERIEL 50. AIR DOCUMENTS PROCESSING - 1946  
51. JAPANESE RITA 52. CAPTURED DOCUMENTS AT WRIGHT FIELD  
53. WASSERFALL GERMAN MISSILE 54. CAPTURED MATERIEL  
55. COLLECTION DIVISION, T-2 COL M. D. SEASHORE AND STAFF





were checked and metallurgical analyses made. Engines of a certain series were found to have connecting rods with a deficiency of manganese. It was deduced that the Japanese suffered a shortage of this metal and this information was passed to Targets. Bombing raids were set up to cover all known sources and stockpiles of manganese to guarantee that the shortage would continue.

Pacific air technical intelligence solved many problems. One was the difficulty encountered in communications when identifying Japanese aircraft. Captain McCoy and TSgt Williams began assigning code names such as Frank, Betty, Francis, Zeke, and Nate - feminine names for bombers and masculine names for fighters and observation planes. These were derivatives of their own names and those of personal friends - Frank (Captain McCoy), Francis (TSgt Williams), Ray (Captain Ray W. McDuffey, formerly with ATIC), Nell (Mrs. McDuffey), etc. The procedure of assigning proper names as code names was officially adopted, and is still being used to identify Soviet aircraft.

#### TAIU IN CONTROL

In October 1944, a Technical Air Intelligence Unit (TAIU) was formed and attached to the Far East Air Forces. Frank McCoy, by then a Lt Colonel, was designated Officer-in-Charge. Under his direction, TAIU took possession and control of all captured Japanese aircraft and equipment in the Pacific theater.

Earlier in the same year, a Technical Air Intelligence Center (TAIC) was officially established in Washington, D.C. (Anacostia), as a joint Army-Navy organization with British participation. To this center was assigned the responsibility of collection, evaluation, and dissemination of all technical intelligence on the Japanese Air Forces. This center worked closely with TAIU in the field and absorbed part of its experienced personnel. TAIC, during 1945 and 1946, also worked closely and harmoniously with Intelligence at Wright

Field. When it was deactivated in the summer of 1946, some of its key personnel were assigned to technical intelligence at Wright Field, along with those functions which pertained to the Air Corps.

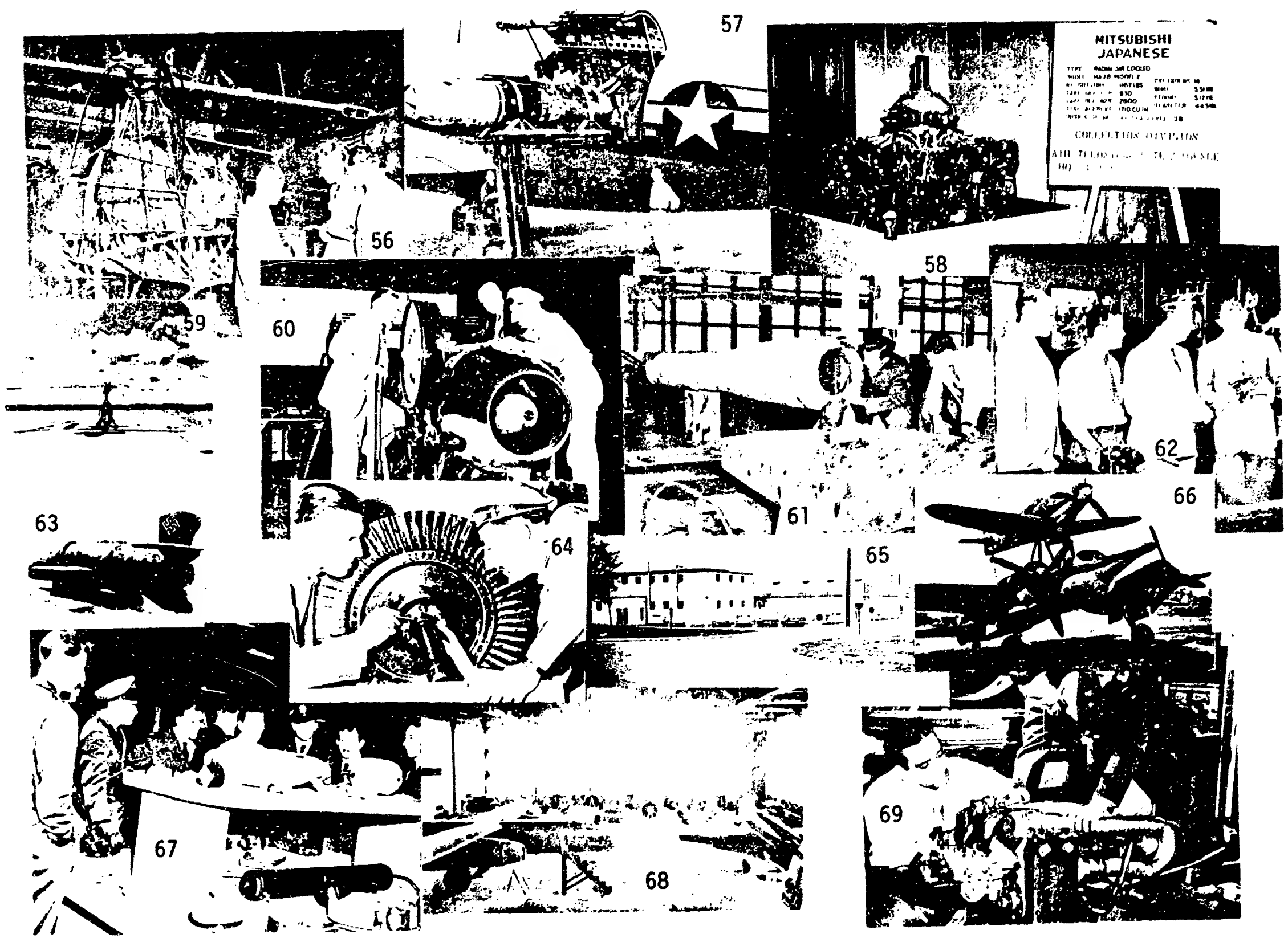
#### INDEXING A NATION'S AERONAUTICAL RESOURCES

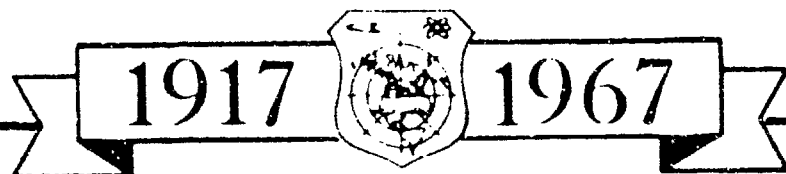
In Europe the problem of utilizing the tremendous mass of documents had to be solved.

During the war, the various laboratories at Wright Field had participated in the intelligence activities by preparing "Black Lists" of wanted enemy equipment and had furnished technical personnel for Project LUSTY. This experience, plus its already established T-2 Intelligence Department, resulted in Wright Field's assignment to process and exploit the captured documents.

The air documents story actually began at 59 Weymouth Street, London, when General H. H. Arnold directed that an "Index Project" be initiated to process the millions of reports and documentary items that had been captured. Colonel McCoy was selected to head the Air Document Research Center in London. In December 1945, this operation was transferred to T-2, Wright Field. It culminated in one of the outstanding events in documentation history - the indexing and abstracting of an entire nation's aeronautical R&D literature.

- 
- |                         |   |
|-------------------------|---|
| 56. DOBLHOFF HELICOPTER | 57. JUMO 004 ENGINE                     |
| 58. JAPANESE ENGINE     | 59. HELICOPTER KITE                     |
| 60. JUMO 004 ENGINE     | 61. GERMAN V-1                          |
| 62. SYMPOSIUM           |   |
| 63. NATTER              | 64. EXAMINATION OF JET ENGINE COMPONENT |
| 65. BUILDING 263        | 66. ME-109 WITH U-88 DRONE (BEETHOVEN)  |
| 67. EQUIPMENT DISPLAY   | 68. ARADO 234, HE-162                   |
| 69. ANALYSTS            |   |





Within 28 months, some 1,500 tons of documents were screened by teams of technical intelligence analysts and German scientists and the important ones classified, catalogued, indexed, and published on microfilm. Included were details of the world's first production jet engine fighter; the design, production, and test information needed to duplicate the V-1 and V-2 missiles; and literally thousands of German research projects, inventions, and discoveries.

This operation selected some 500,000 documents for priority handling. This phase of the effort was monitored by Victor H. Bilek, who is still with FTD.

#### GERMAN/ENGLISH DICTIONARY COMPILED

During the document processing task, many side items were produced. One of these was a dictionary containing over 110,000 of the latest German aeronautical terms. New technological areas had been explored by the Germans in their development of jet engines and rockets under a cloak of military security. Hence, translations from German to English were difficult until after the compilation of a new German/English technical dictionary. This effort was the forerunner of similar actions in later years by FTD involving the Russian and Chinese languages.

#### EXPLOITATION COMPLETED

By the fall of 1947, T-2 had essentially completed the exploitation of the captured German and Japanese technology. Major General George C. McDonald, Assistant Chief of Air Staff A-2, recommended a reorganization of T-2. His report to the Army Air Force's Chief of Staff included the axioms that: "Intelligence is a prerequisite to intelligent research and development and procurement: a knowledge of our own developments is a prerequisite to evaluation of foreign developments"; and "the security of our own information is a prerequisite to technical superiority."

#### T-2 REORGANIZED

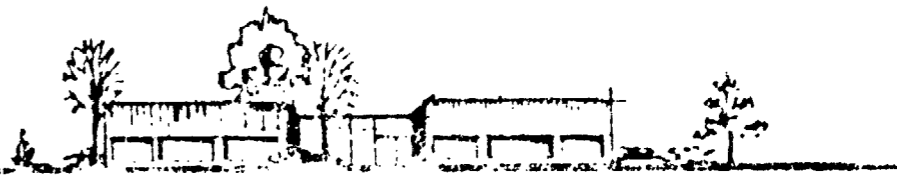
General McDonald recommended that nonintelligence functions be removed from T-2, and that its total energies be directed toward meeting the air technical intelligence requirements of the Army Air Force. His recommendations were approved. Colonel Howard M. McCoy (then Deputy Commanding General, T-2) assisted in the details of reorganization.

The nonintelligence portion of the Air Documents Division became the Central Air Documents Office (CADO), later the Armed Services Technical Information Agency (ASTIA), and is currently known as the Defense Documentation Center (DDC). The Historical and Photographic Divisions, Air Technical Museum, Administration of German Scientists and other nonintelligence functions were transferred at this time.

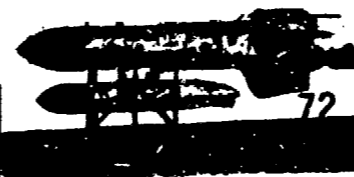
#### REORIENTATION OF T-2

Following the reorganization of T-2, efforts to produce technical intelligence reports and estimates on foreign air weapons were intensified. Technical information was meager in quantity and of indifferent quality. There was no adequate data base to confirm or deny information received. Contractors and consultants were employed, but they too were handicapped by inadequate background information on foreign scientific and technical progress.

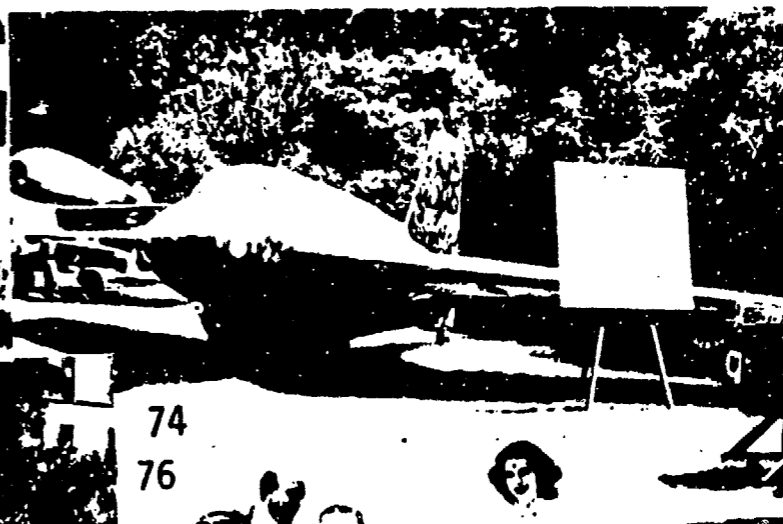
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- 70. V-2 - ONE OF MANY DISPLAYS
  - 71. BRIEFING SECRETARIES 72. HENSCHEL AIR-TO-SURFACE MISSILE
  - 73. GERMAN "ENZIAN" SURFACE-TO-AIR MISSILE AT PEENEMUNDE
  - 74. ME-163 75. JAPANESE KAMIKAZE 76. ME-163 HEDI LAMARR
  - 77. CAMERA CREW 78. AMERICAN COPY OF V-1 79. BUILDING 89
  - 80. BUILDING 89 81. GERMAN FLETTNER HELICOPTER



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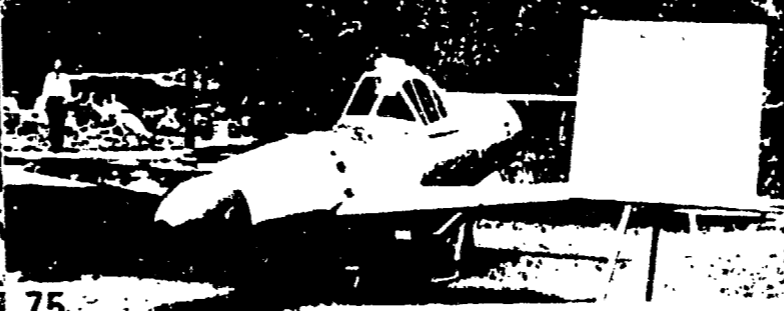


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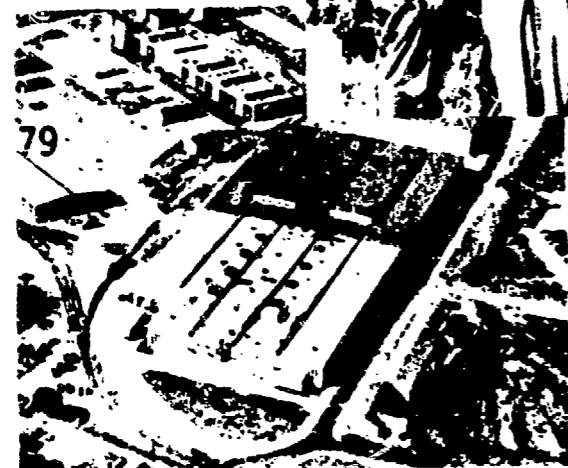
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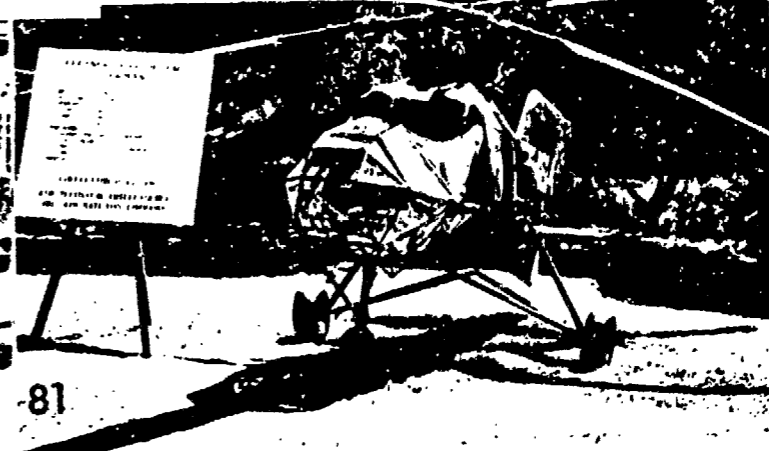
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### BEGINNING OF DATA BASE

In 1948, the Air Targets Division, Intelligence, Headquarters USAF, initiated a project which exploited foreign published literature to determine certain economic facts which might be utilized in the event of war. Previously there had been no systematic and continuing review of foreign published S&T literature.

Lt Colonel Raymond S. Sleeper, present Commander of FTD, was project officer. Management of a major portion of the project was eventually turned over to Technical Intelligence at Wright Field.

### NEW DIMENSIONS IN INTELLIGENCE

By 1950, new and more sophisticated methods of estimates were evolving. From available information, designers were able to predict that the MiG-15 would have certain performance limitations. One of our contractors was able to furnish estimates on the performance of the jet engine used in the MiG-15, and furnished information on manufacturing techniques and precision manufacturing abilities. Information gained in the analysis of one weapon system gave insight on the probable performance of others.

### KOREA

In anticipation of a crisis in the Far East, Air Technical Liaison Officers (ATLOs) were sent to Japan. Within a few months after their arrival, North Korea attacked South Korea on 25 June 1950. President Truman ordered US armed intervention two days later.

During the early days of hostilities, the ATLOs provided guidance and council to the combat forces in air technical intelligence. Captured enemy materiel and documents became available almost immediately. Information of combat significance was processed in Korea or Japan when possible,

but large quantities of materiel and some documents were sent to WPAFB.

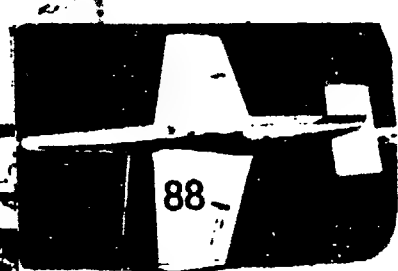
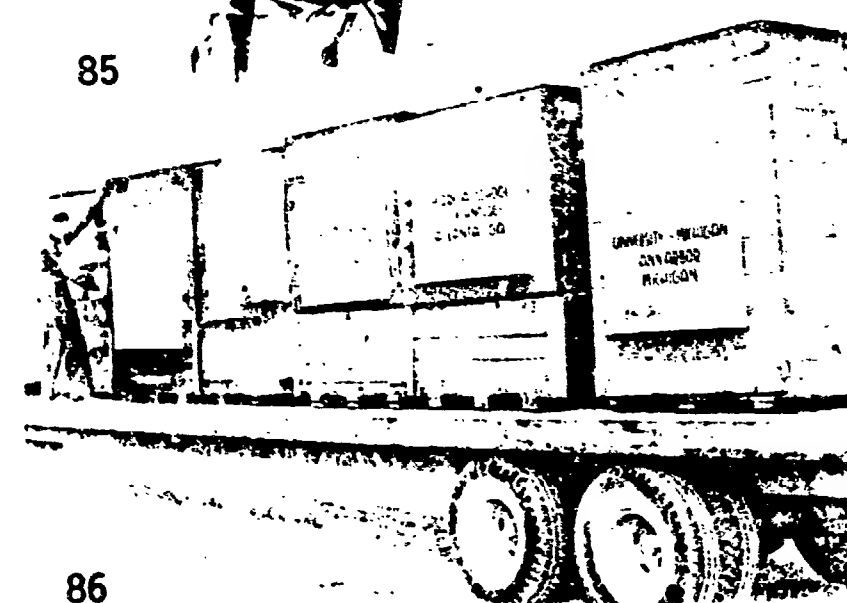
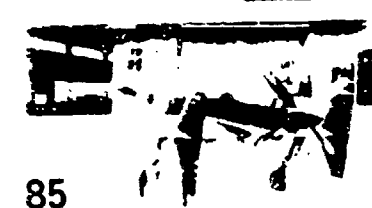
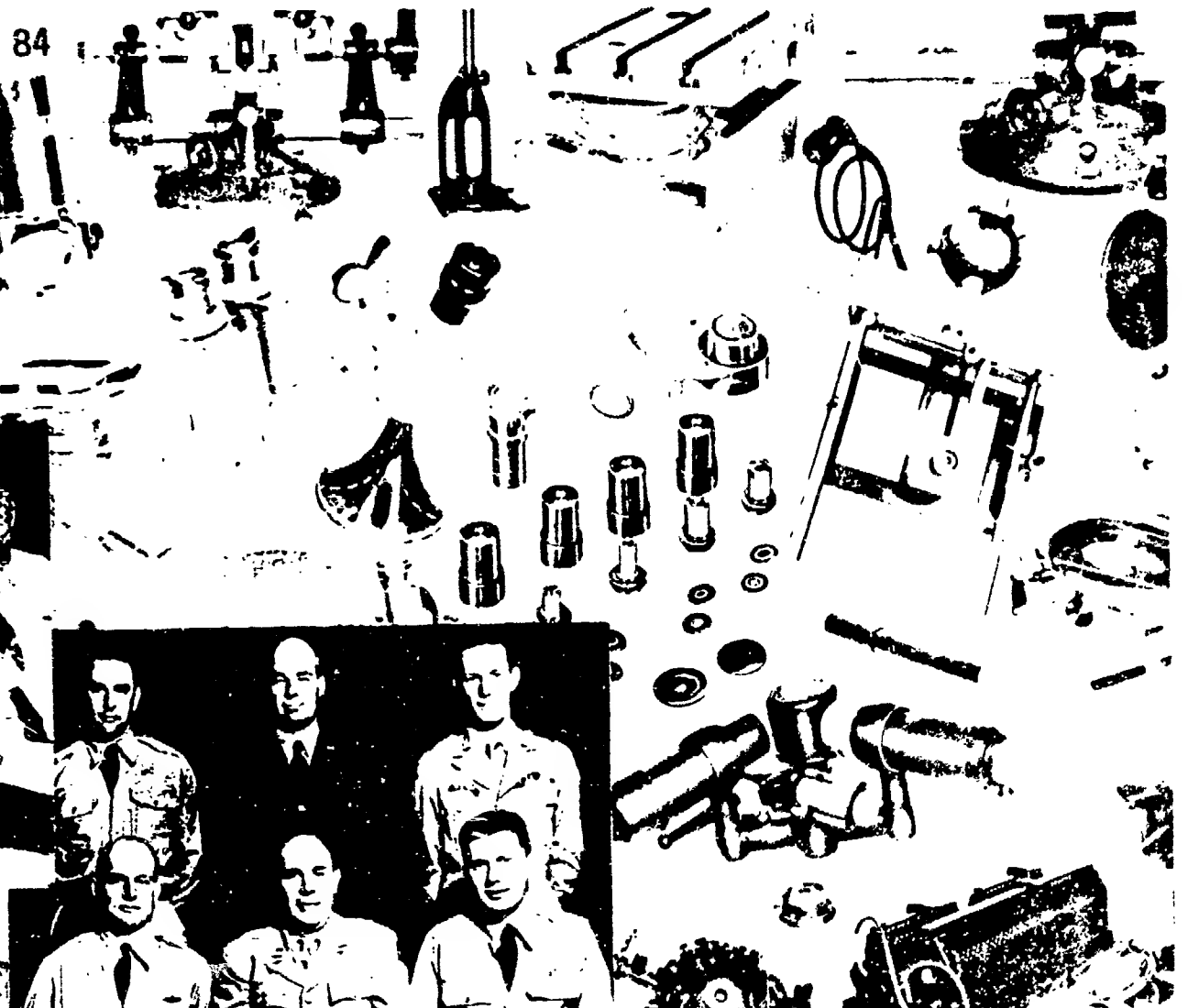
The Korean conflict proved the value of possessing valid performance and characteristics estimates on enemy weapons - before the war. MiG-15 estimates stood up well. The MiG, as intelligence predicted, had certain limitations over certain speeds. An Associated Press dispatch, dated 1 March 1951, stated, "Most Sabrejet pilots believe their plane is of better aerodynamic design than the MiG. As evidence of this, they cite a number of instances in which an F-86 has dived away from a MiG or has pursued and caught a MiG when it went out of control."

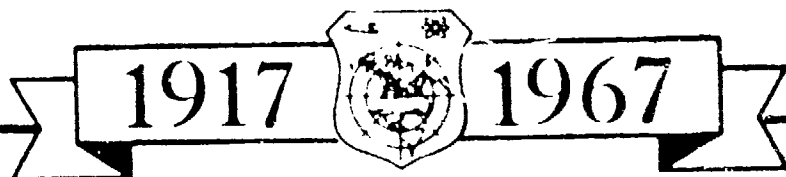
### WANTED: ONE MiG

Early in 1951, Colonel Watson and General Benjamin Chidlaw (Commanding General, Air Materiel Command) visited the Far East and personally requested General E. E. Partridge (AAF Commander in Korea) to make every effort to obtain a complete MiG-15 for analysis. As a result of this request, a MiG that was shot down and crashed off Korea was retrieved within a short time.

Parts of another MiG were recovered by helicopter. Technical intelligence personnel landed, ran up to the crashed plane, threw grenades into the MiG to separate assemblies small enough to carry, and left under enemy fire. These parts were shipped with other captured materiel to WPAFB.

- 
- 82. EARLY DISPLAY 1946      83. OFFICE PARTY
  - 84. CAPTURED RESEARCH TOOLS      85. JAPANESE SHINDEN
  - 86. SURPLUS CAPTURED EQUIPMENT GIVEN TO TECHNICAL SCHOOLS
  - 87. ATIC CHAMPION BOWLING TEAM
  - 88. GERMAN WIND TUNNEL MODEL      89. ATI CLASS





## AIR TECHNICAL INTELLIGENCE CENTER (1951-1961)

On 23 January 1950, the Air Research and Development Command (ARDC) had been formed in a major realignment of ATSC functions, and in May 1951, the Air Technical Intelligence Center (ATIC) was designated the 1125th Field Activities Group under A-2 Headquarters, USAF. ATIC for the first time became a fully recognized member of the intelligence community. ATIC was thus able to mesh its production schedules more efficiently with the overall intelligence effort.

Colonel Frank L. Dunn replaced Colonel Watson as Commander in June 1951. He served until August 1952, when he was detailed to flying duties and was replaced by Colonel Jack O'Mara, a veteran intelligence officer, who served as Acting Commander until the arrival of Brigadier General W. M. Garland.

General Garland had been former Chief of Air Targets in Washington. His experience in the Washington intelligence community helped ATIC open many doors. He was also instrumental in bringing ATIC products into better alignment with the overall estimates being produced in Washington. General Garland's health failed and in 1953 he was replaced by Colonel George Wertenbaker, former Air Attache in Sweden.

### DEFECTOR DELIVERS MiG-15

In 1953 a defector from North Korea flew a MiG-15 to Kimpo Air Field in South Korea. Although ATIC felt that it knew all about the MiG, this was an opportunity once and for all to check the accuracy of its estimates. It was also a

chance to fly the MiG against our bombers and other weapons to test their vulnerability.

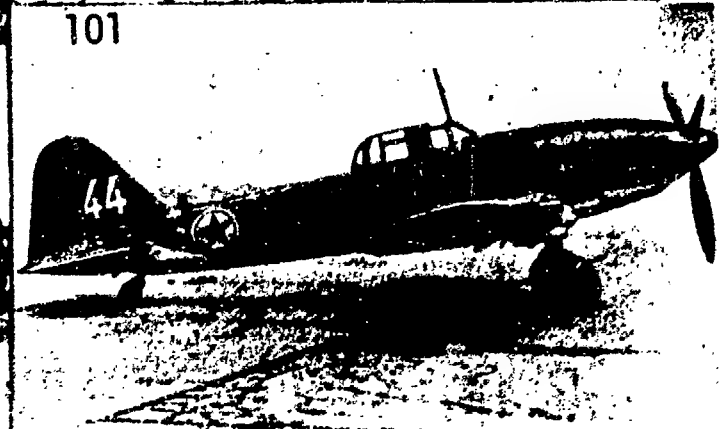
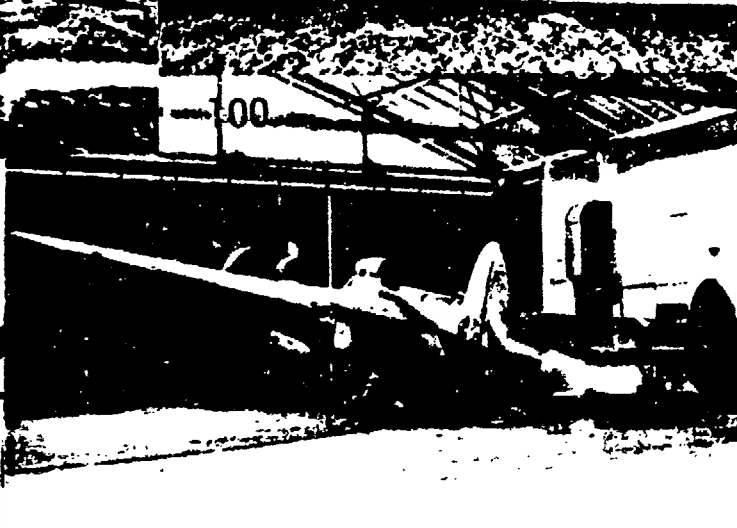
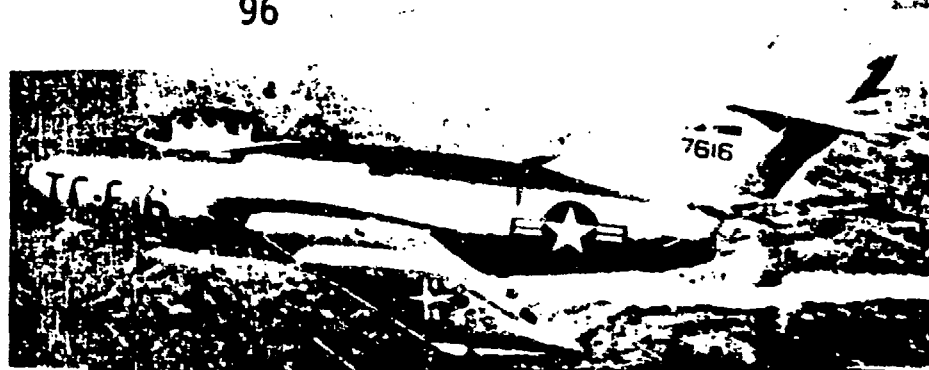
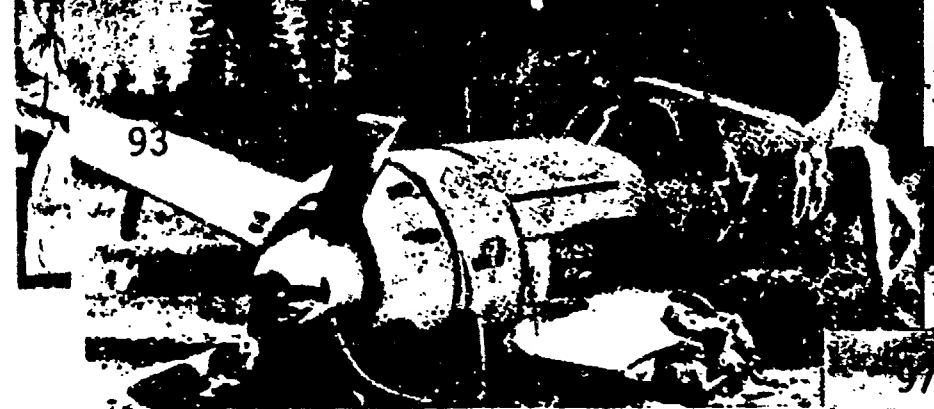
The MiG was flown to Okinawa and flight-tested by US pilots, including General Al Boyd. Later it was flown at Eglin and Wright-Patterson. Technical intelligence had proved its ability to support Research, Development, Test and Evaluation (RDT&E) and combat operations effectively.

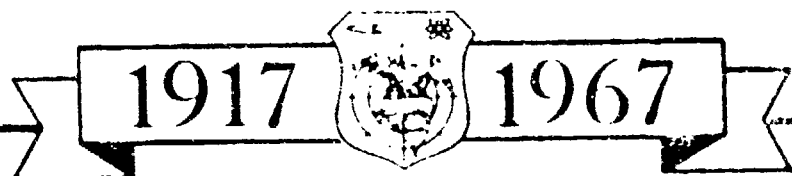
### DATA BASE DEVELOPED

Colonel Wertenbaker was reassigned in February 1954, and Watson, now a Brigadier General, again assumed command. During 1954 and 1955, the emphasis on documentation and use of contractors increased. An impressive file of information was now accumulated. It was organized in such a manner that retrieval of information could be accomplished quickly and efficiently. The quality and frequency of publication of technical intelligence products increased impressively.

Contractors were brought into certain analysis operations. This provided expertise in the evaluation of data and in return gave the contractor first-hand information on the environment in which the weapon system he was responsible for would be required to operate. In many instances, contractors were able to gain insights from the foreign data which stimulated new ideas in their design offices.

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- |                                 |  |
|---------------------------------|--|
| 90. COL H. E. WATSON AND FRIEND | 91. BUILDING 287                         |
| 92. SOVIET EQUIPMENT            | 93. LA-11 94. SOVIET ARMAMENT            |
| 95. BUILDING 263                | 96. NORTH KOREAN MiG-15 97. BUILDING 259 |
| 98. COL H. E. WATSON            | 99. YAK-9 100. TU-2 BOMBER 101. IL-10    |





### FACILITIES EXPANDED

Early in 1958 Colonel John G. Eriksen, who had served as Vice Commander under General Watson, was appointed Commander. During Colonel Eriksen's command Building 828 (the present FTD Headquarters) was completed.

Major General Charles B. Dougher, formerly Commander, 8th Air Force, Westover AFB, assumed command late in 1958. During his tenure significant increases in technical equipment, including a computer, expanded FTD's production, and construction plans for Building 829 were approved.

### FOREIGN TECHNOLOGY DIVISION 1961-1967

In September 1959, in recognition of emerging foreign aerospace programs, the Air Technical Intelligence Center was redesignated the Aerospace Technical Intelligence Center.

In April 1960, a major realignment of Air Force functions transformed the ARDC into the Air Force Systems Command (AFSC), and on 1 July 1961, the Aerospace Technical Intelligence Center was assigned to AFSC. The name was changed to Foreign Technology Division (FTD) to correspond to the division structure of AFSC, and Brigadier General Arthur J. Pierce became the new Commander.

Although assigned to AFSC, FTD retained responsibility for production of Air Technical Intelligence for the USAF. Playing a dual role, FTD now provided support to R&D in addition to its responsibility for meeting national requirements for aerospace technical intelligence. The depth, breadth and interdisciplinary nature of new technical and scientific advances required that additional resources be involved in the role of foreign technology.

### DEPUTIES ESTABLISHED

Deputies for Foreign Technology (DFTs) were established in the AFSC Divisions and Centers with FTD as Lead Division. Each DFT acts as an interface between his Division and Center and FTD on matters pertaining to R&D support or the production of air technical intelligence. Thus, the entire intellectual resources of AFSC and its contractors can be brought to bear on the solution or study of a significant problem. Furthermore, the DFT facilitates effective dissemination of foreign technology information.

### COMPUTER CAPABILITY

The orbiting of Sputnik, ballistic missile threats paraded by the Kremlin, Tushino Air Show flybys, the Cuban missile crisis, Chinese nuclear tests, and increasing evidence of an expanding Soviet aerospace R&D program have given an urgency to FTD production. This increased urgency, plus the sophistication of modern weapon systems, required numerous refinements in the internal and procedural aspects of FTD.

FTD pioneered the use of computers in intelligence analysis. Increased competency in the application of machine methods for the reduction of data is an important factor in the current operations. The present FTD Computer Complex includes an IBM 7094 system supplemented by an IBM 1401 system which provides high-speed input/output to the main computer.

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102. 103. 104. GROUND BREAKING BUILDING 828 · JULY 1956  
105. SAFE DRIVER AWARD 106. BUILDING 828 UNDER CONSTRUCTION  
107. BUILDING 219 108. LEONA DOWNS AND HUNTER WATSON  
109. GENERAL W. M. GARLAND AND COLONEL FRANK L. DUNN  
110. COLONEL FRANK L. DUNN AND GENERAL W. M. GARLAND  
111. FRIENDS 112. ENTRANCE TO BUILDING 828

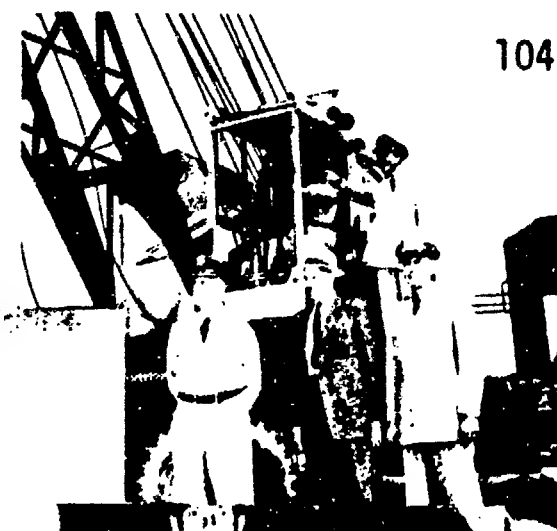
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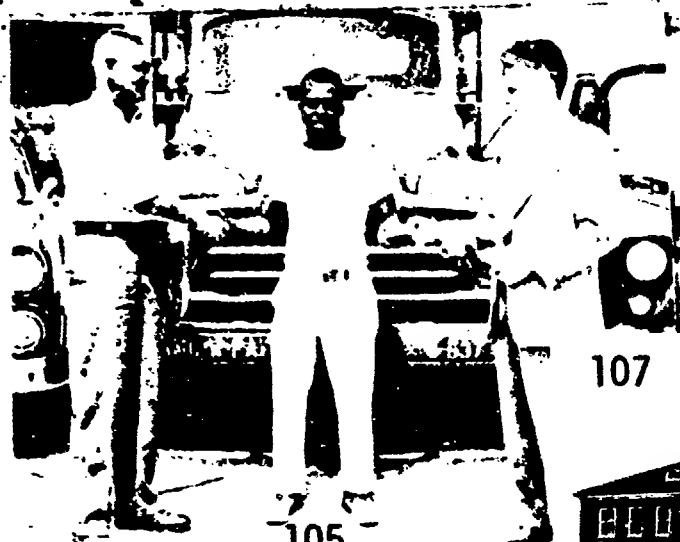
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AIR TECHNICAL INTELLIGENCE  
CENTER  
NO 415 JMW FIELD ACTIVITY  
FOR AIR INTELLIGENCE SERVICE - SC

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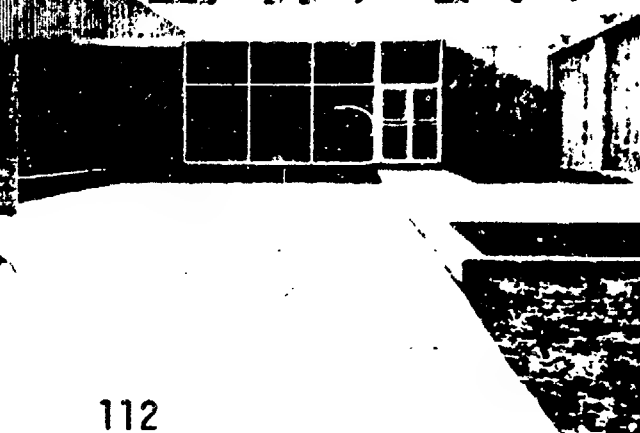
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## MACHINE TRANSLATION

Additionally, FTD possesses machine translation capability which augments the human translation department in making available to the intelligence community significant foreign documents.

In May 1956, an R&D contract was written with IBM for the production of a photostatic memory disc to be used with a special purpose computer. This action resulted in the production of the Mark I Translating Device, which produced its first machine translation in January 1959.

The Mark I was service-tested and refined, and, in October 1963, the Mark II was built and installed at FTD. With a present capacity of well over 100,000 words a day, its potential is practically limitless.

## BUILDING 829

In 1964 work started on Building 829, which provided additional space for data reduction purposes. Mr. I. Herman was responsible for providing the technical and administrative knowledge in gaining approval for this facility, which was completed early this year. Plans for further enlargement of the 828-829 complex are under consideration.

113. COLONEL GEORGE WERTENBAKER 114. ATI CLASS

115. ANALYSTS 116. PHOTOGRAPHIC SCHOOL STAFF

117. CHARLES ZIMMERMAN AND COLONEL JACK O'MARA

118. FRANCIS ARCIER, MRS. IVY MAMMOLITE, MAJ GENERAL WATSON

119. COLONEL JOHN G. ERIKSEN 120. COMPUTER ROOM

121. ANALYST 122. LIBRARY BUILDING 828

123. ELECTRONIC DATA REDUCTION EQUIPMENT 124. ANALYST

125. ANALYSTS 126. BRIGADIER GENERAL ARTHUR J. PIERCE

127. REPRODUCTION DEPARTMENT 128. GRAPHICS DEPARTMENT

129. GRAPHICS DEPARTMENT 130. GROUND BREAKING BUILDING 829

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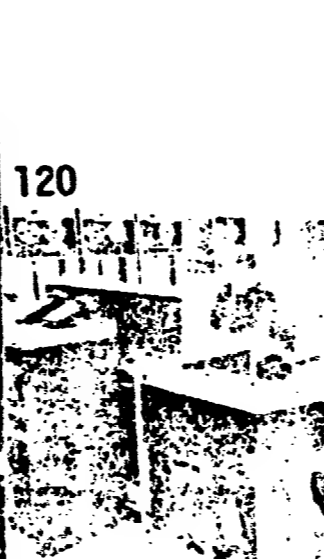


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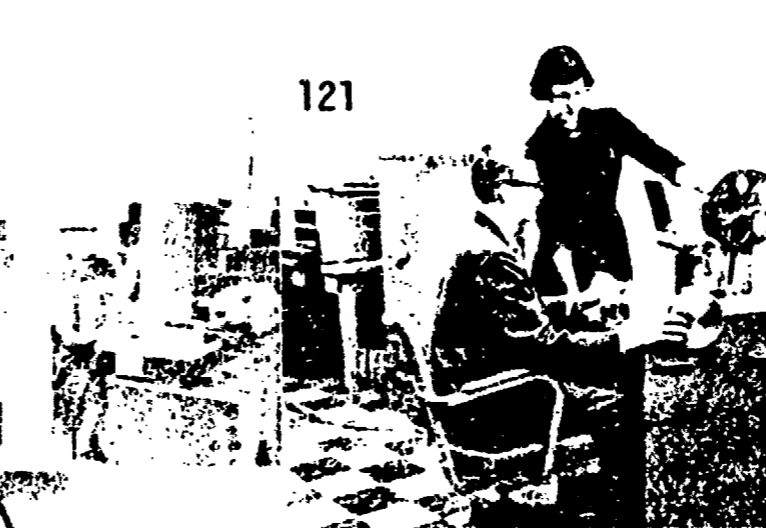




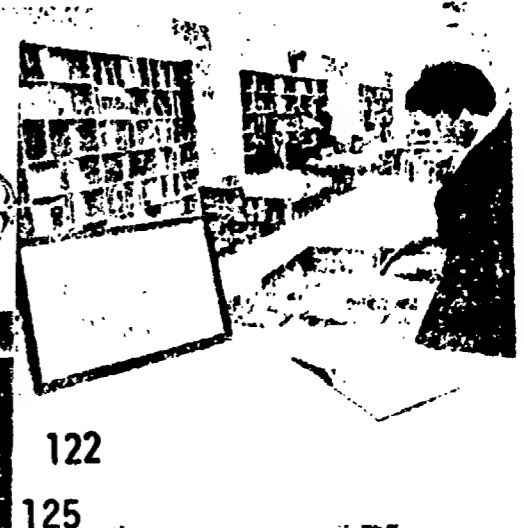
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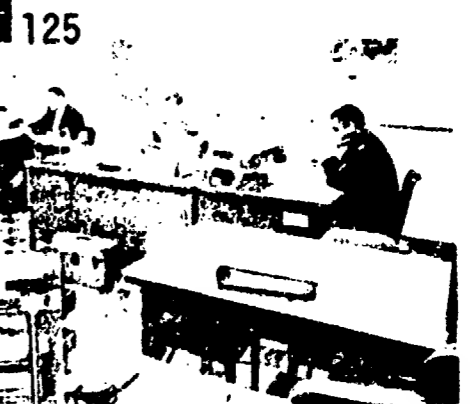
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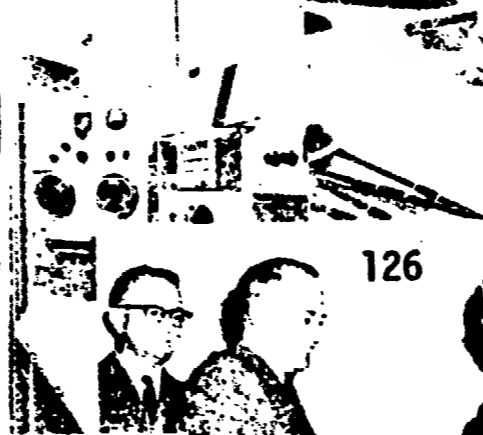
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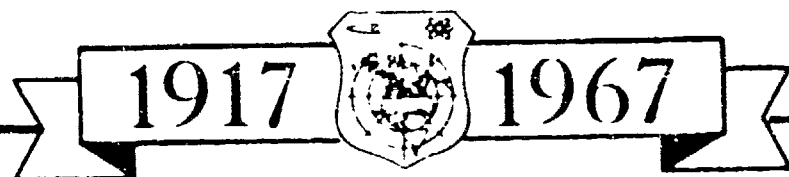
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## CHANGES IN COMMAND

In July 1964, Colonel Arthur W. Cruikshank, Jr., became Commander of FTD. Prior to this appointment, he had served as Commander of the Research and Technology Division's Systems Engineering Group at WPAFB with additional duty as Deputy Commander of the Research and Technology Division. Colonel Cruikshank was promoted to Brigadier General on 1 November 1964.

Colonel Raymond S. Sleeper succeeded General Cruikshank as Commander on 9 August 1966. Previously Colonel Sleeper had served as Deputy Chief of Staff for Foreign Technology, Headquarters, Air Force Systems Command.

## THE FTD MISSION

From its formal inception as Intelligence, T-2 in 1945, FTD has been the only national source devoted exclusively to providing information on foreign aerospace developments.

The assigned mission of the Division is to plan, manage, and execute the AFSC foreign technology program in order to achieve the following objectives:

1. Reduce the possibility of technological surprise.
2. Provide valid, logical, and timely foreign technology support to US and R&D activities.
3. Assist and support the US effort in obtaining maximum effectiveness of aerospace power.

FTD is directly responsible to Headquarters, AFSC, for accomplishing these objectives by:

1. Acquiring, evaluating, and analyzing foreign scientific and technical information and equipment; and producing

and disseminating reports, studies, technical evaluations, and related contributions on the current and potential status of foreign technology.

2. Applying advanced domestic technology to the preceding functions.

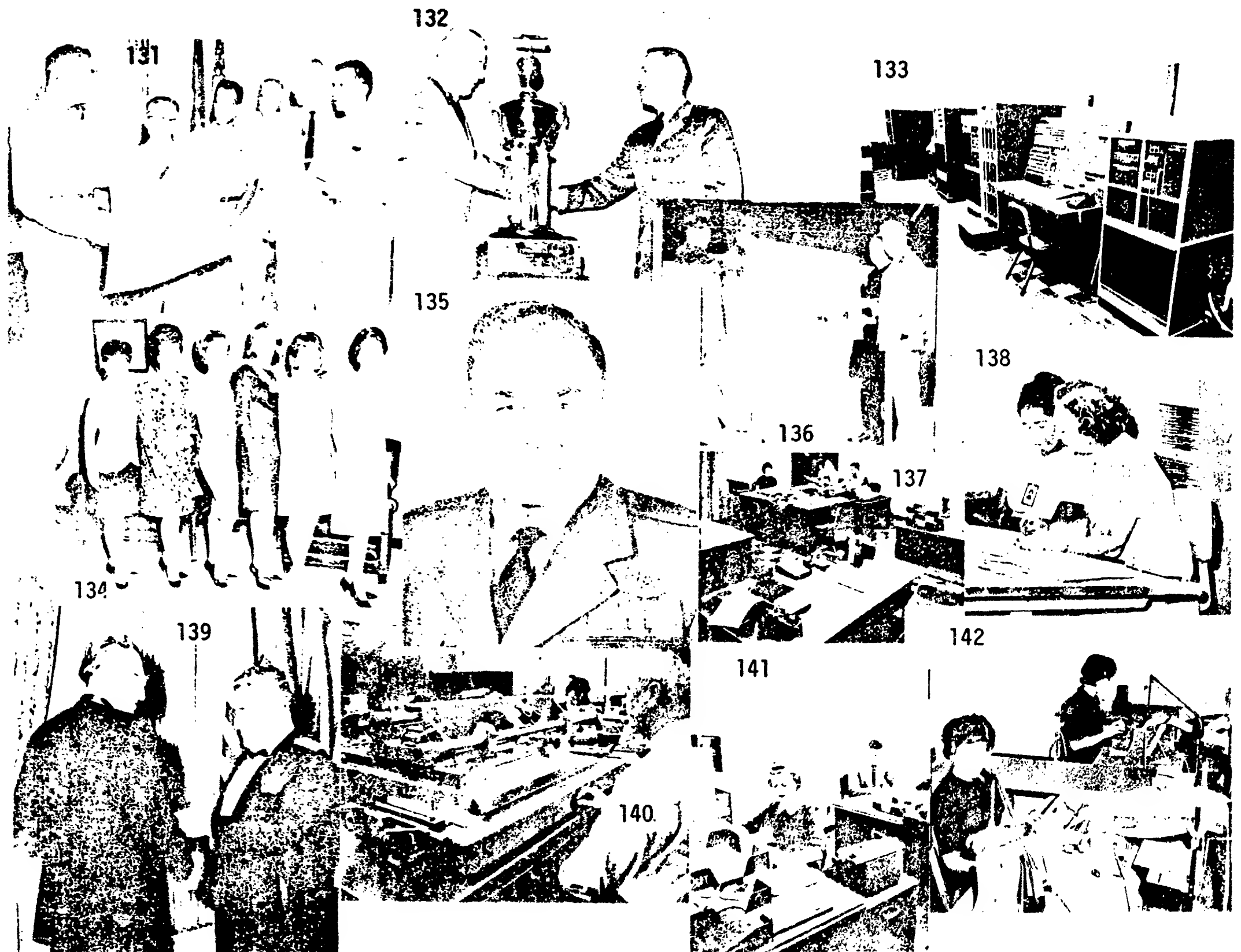
3. Disseminating foreign technological data to US and Free World R&D and intelligence communities.

4. Developing and maintaining the technological threat picture - tasking AFSC organizations as necessary as the Lead Division.

The established validity of technical intelligence methodology, the continued buildup of talented R&D personnel, and the contributions of private industry to air technical intelligence are insurance that FTD will not again be faced with conditions as General Mitchell knew them 50 years ago.

To attempt to maintain national security without adequate knowledge of foreign developments would be prohibitively expensive even if we were successful; it would be catastrophic if we were not.

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131. COLONEL CARLISLE, MR. DALIN'S RETIREMENT CEREMONY
  132. MAJOR GENERAL CHARLES B. DOUGHER RECEIVING COMMANDERS TROPHY FROM COLONEL T. H. BALDWIN, WPAFB
  133. MACHINE TRANSLATION
  134. SECRETARIES
  135. BRIGADIER GENERAL A. W. CRUIKSHANK
  136. GROUND BREAKING BUILDING 829
  137. ANALYSTS
  138. PUBLICATIONS EDITORS AT WORK
  139. GENERAL CRUIKSHANK PRESENTING AWARD
  140. ANALYSTS
  141. ARMY LIAISON OFFICE
  142. MACHINE TRANSLATION



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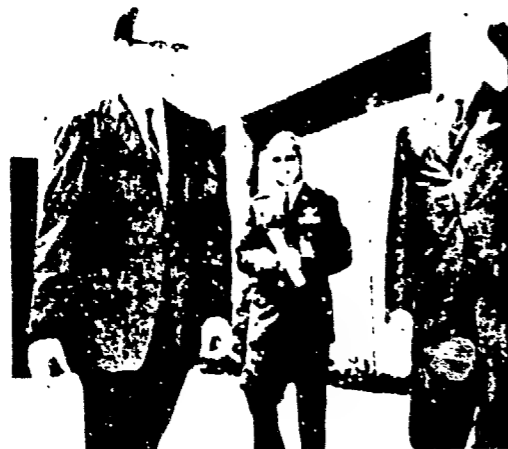
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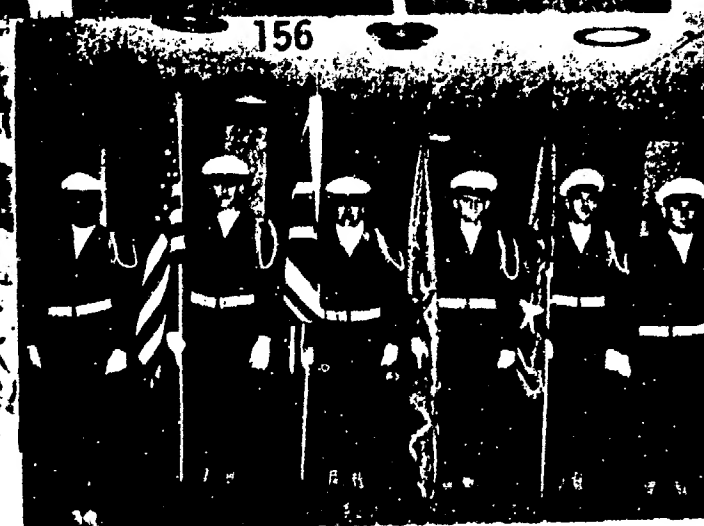


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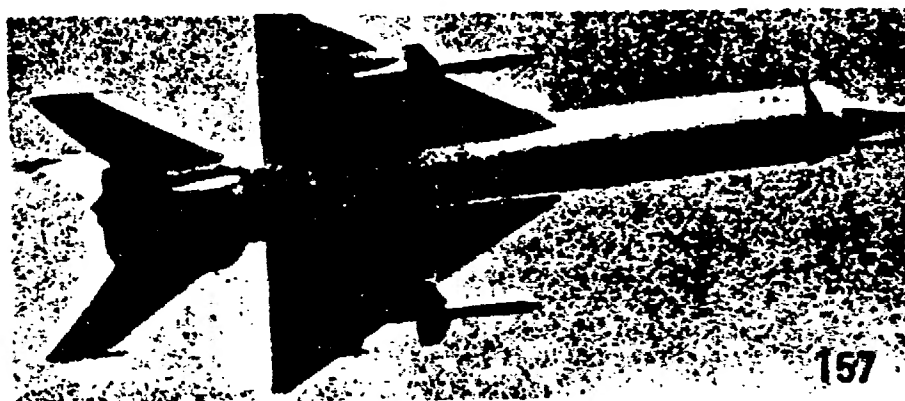


- 143. COLONEL SLEEPER PRESENTING AWARD
- 144. COL R. S. SLEEPER AND FRIENDS
- 145. MORNING BRIEFING 146. CONFERENCE
- 147. CONG. C. WHALEN VISITING FTD
- 148. COLONEL F. HOLM (PRESENTING AWARD  
TO OUTSTANDING PROFESSIONAL  
ENGINEER NICK KARMELE
- 149. COL SLEEPER AND ADMIRAL R. TAYLOR
- 150. OFFICERS "DINING IN" 151. DAG MEETING
- 152. SOCIAL FUNCTION 153. PHOTO LAB
- 154. NCO "DINING IN" 155. NCO "DINING IN" 156. HONOR GUARD

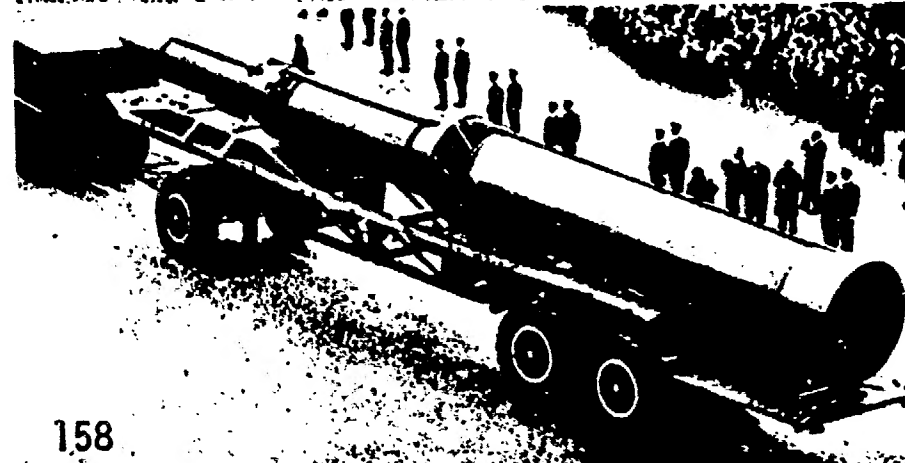
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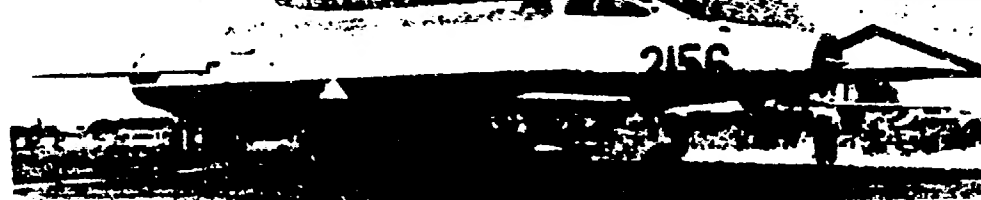


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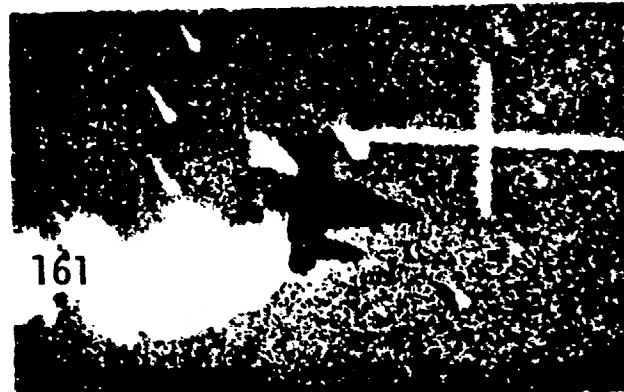


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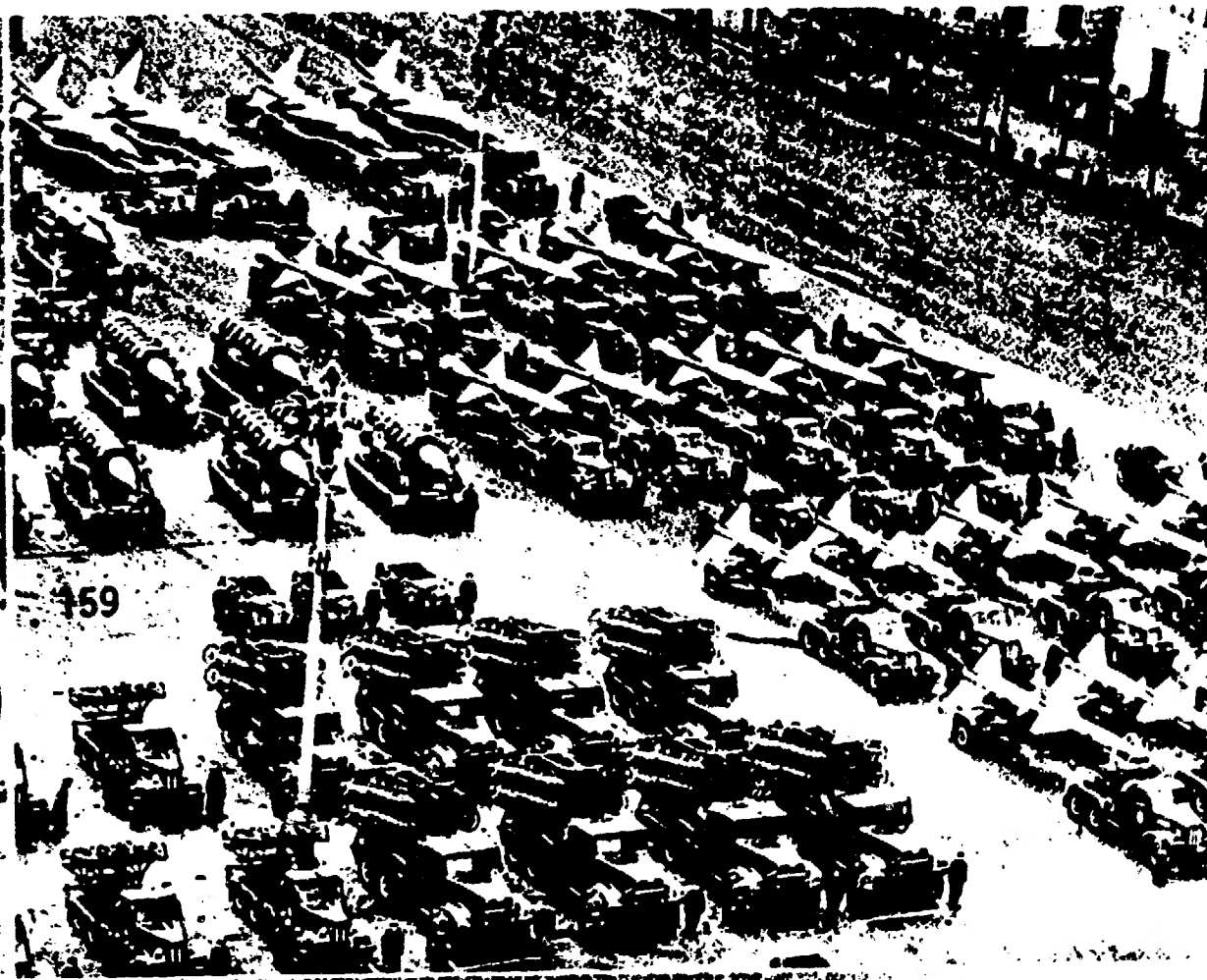


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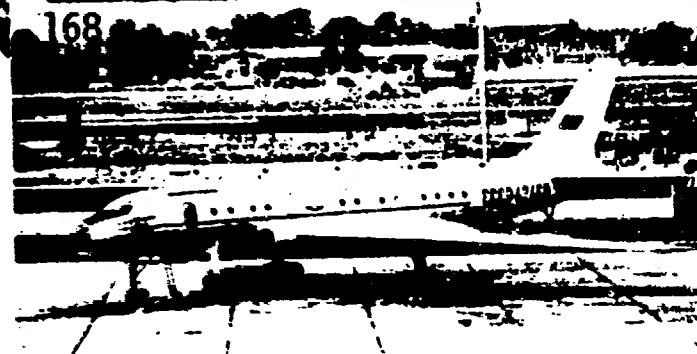
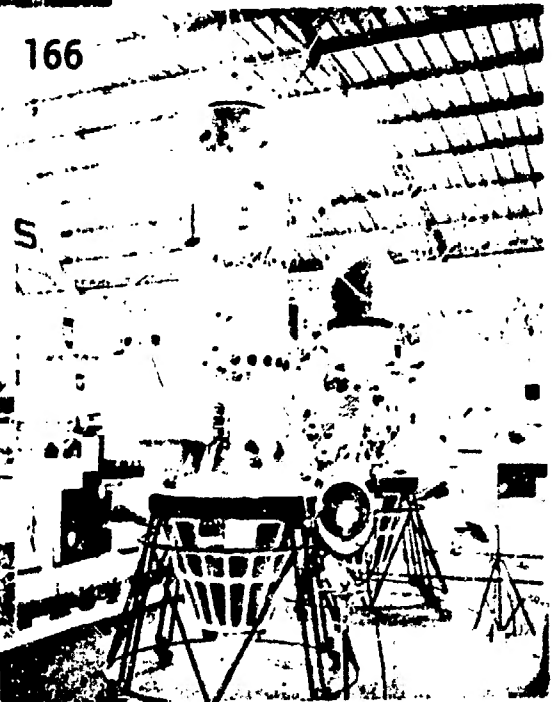
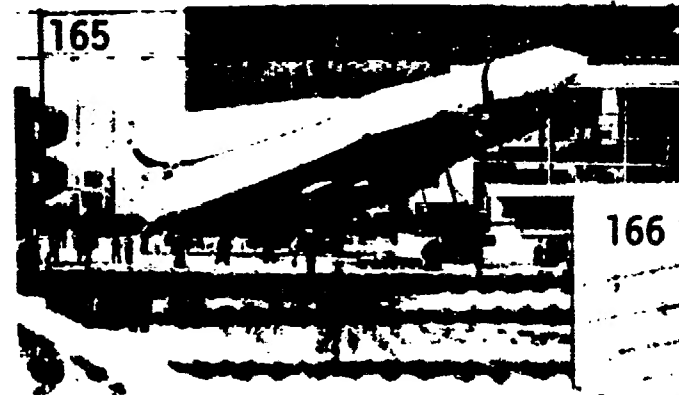
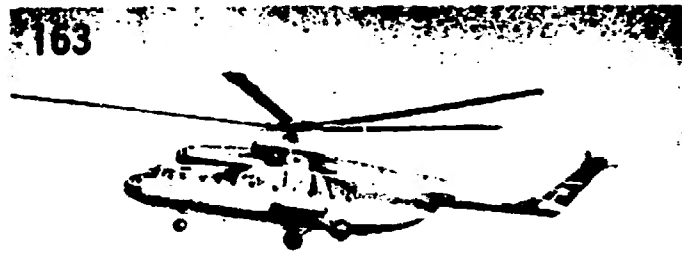


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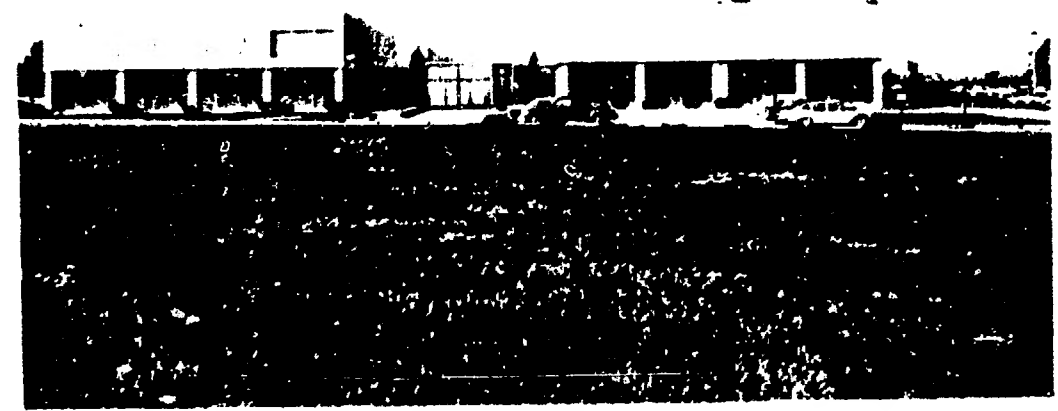
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- 157. SOVIET FLIPPER 158. SAVAGE MISSILE
- 159. SOVIET PARADE 160. MiG-21
- 161. MiG-21 (AS SEEN BY GUN CAMERA)
- 162. BADGER BOMBER 163. MI-6 HELICOPTER (SOVIET)
- 164. SA-2 SOVIET MISSILE 165. VOSTOK
- 166. AN-22 (SOVIET) 167. LUNA 9, LUNA 10 (SOVIET)
- 168. TU-104 (SOVIET) 169. FTD BUILDING



# FACILITIES

